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POVERTY, EXPLOITATION, AND POPULATION GROWTH: MARXIST AND MALTHUSIAN VIEWS ON THE POLITICAL ECONOMY OF CHILDBEARING IN THE THIRD WORLD

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by

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ABSTRACT

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Debate over the causes and effects of world population growth ultimately revolves around the link between population growth and poverty. The neo-Malthusian position holds that poverty and population growth are mutually perpetuating, suppressing the chances for economic development in the Third World. The opposing view, often voiced by Marxists, maintains that population growth may be encouraged by poverty but that poverty itself arises from the political/economic relations of the capitalist world system. Implicit within this debate is a more fundamental one between modernization and dependency theorists, and their clashing analyses of the global economic mechanisms of production and distribution.

This thesis traces the debate from its first clear expression in the 18th Century to its contemporary manifestations. After an extensive theoretical discussion of the two positions today, path analysis is used on cross-national data collected for 1965 to discover which position has the strongest empirical support. Four path models are developed to assess different aspects of the debate. The model derived from dependency theory is found to receive the most support, while those informed by the neo-Malthusian position are clearly unsupported, and those derived from modernization theory provide ambiguous results. The interpretations of the results are highly suggestive for further research using time series data. "It is . . . necessary, at each stage, to integrate the new facts into one's analysis. This seems obvious, and yet there are always some in search of absolute certainties who refuse to do this, and are consequently forced either to ignore the new facts or else try and fit them at all costs into a schema that had not allowed for them."

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"... it is necessary to start, in any scientific analysis of these problems, not from the exegesis of sacred texts but from reality, and from the way in which reality finds reflection in the theory and ideology of society."

> Samir Amin (1974, 590, 596) Accumulation On A World Scale

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iii

TABLE OF CONTENTS

INTROE	$JCTION \cdot \cdot$
"N	odernization" vs. "Dependency" Theory
Pl	n of the Work \cdots
No	es to the Introduction \ldots \ldots
CHAPTI	R ONE: THE HISTORIC EVOLUTION OF THE POPULATION QUESTION
I.	Introduction and Summary of the Argument
١١.	Predecessors to Malthus
111.	Initial Formulations of the Malthusian Doctrine 13
IV	The Attack on Malthusianism: (A) Condorcet and Godwin
۷.	The Malthusian Doctrine Proper: Malthus's Counterattack and Defense of Wallace 16
VI.	The Attack on Malthusianism: (B) The Marxist Attack on Malthus
VI	Summary of the Debate
No	es to Chapter One
CHAPTI	R TWO: MODERNIZATION THEORY AND THE POPULATION QUESTION
١.	The Modernization Perspective
11.	The Modernization Process
	A. Economic Modernization
	B. Psychological/Cultural Modernization

TABLE OF CONTENTS, continued

	C. Political Modernization
111.	Modernization Theory and the Population Question 39
	A. Theory of the Demographic Transition
	B. Population Growth and Economic Development 46
	I. Productivity
	2. The Dependency Ratio and the Rate of Savings 49
	 Other Accumulation, Employment, and Market Effects
IV.	Persistent Poverty, Modernization Theory, and Population Growth
Note	s to Chapter Two
CHAPTER	THREE: DEPENDENCY THEORY, POVERTY, AND THE POPULATION QUESTION
intro	duction
I.	The Formation of Articulated Capitalism 64
11.	The Historic Evolution of Peripheral Economies: The "Development of Underdevelopment" • • • • • • • • 68
	A. Mercantile Capital and the Destruction of Non-European Power
	Latin America
	 B. Competitive Capitalism and the Transition to the International Specialization of Production 72
	C. Monopolization and the Final Consolidation of the World Division of Labor

TABLE OF CONTENTS, continued

111.	Underdevelopment Today: Poverty and the Contemporary Anatomy of Peripheral Economy		79
	A. Agricult	ure • • • • • • • • • • • • • • • • • • •	81
	Unequal and the	Modernization, Semi-Proletarianization, Persistence of the Subsistence Peasantry ••••	83
	Foreign and the	Control of Agricultural Accumulation Transfer of its Benefits Abroad • • • • • • •	92
	B. Industry	•••••••••••••••••••••••••••••••••••••••	97
	Industrie and Urb	al Disaccumulation, Foreign Investment, an Wages • • • • • • • • • • • • • • • • • • •	103
IV.	Dependency	Theory and the Population Question	106
	High Rate Toward a	s of Fertility and Semi-Proletarianization: Dependency Theory View of Demographic Change	112
	Notes to Cho	apter Three	119
CHAPTE	R FOUR: STAT	ISTICAL METHODS EMPLOYED	127
I.	Path Analysi	S	127
11.	Derivation o	f the Models Used • • • • • • • • • • • • • • • • • • •	131
	Model I:	Social-Psychological Modernization and Fertility	132
	Model II:	Economic Modernization and Fertility	135
	Models III	A and B: Fertility as a Brake on Economic Output and Growth	137
	Model IV:	The Effects of Dependency Upon Fertility	141
111.	Specification	of Variables Actually Used •••••••	144
Not	es to Chapter F	our	156

TABLE OF CONTENTS, continued

CHAPTER FIVE: THE S	TATISTICAL RESULTS THEIR IMPLICATIONS • • • • • • • • • • • • • • 159
I. The Compute	ed Values for the Models • • • • • • • • • • • 159
Model I:	Social-Psychological Modernization and Fertility ••••••••••••••••••••••••••••••••••••
Model II:	Economic Modernization and Fertility 165
Model III:	Fertility as a Brake on Economic Output and Growth
Model IV:	The Effects of Dependency Upon Fertility 176
II. Summary Co	nsiderations
Notes to Chapter Fi	ve
APPENDIX	
REFERENCES	

LIST OF TABLES

Table I. Variables, (Conceptual Use, and Specifications	147
Table A (Appendix):	Complete Country List • • • • • • • • • • • • • • • • • • •	188
Table B (Appendix):	Variables, Sources, and Descriptive Statistics	190

LIST OF FIGURES

Figure I.	A Hypothetical	Path Diagram
Figure 2.	Model I:	Social-Psychological Modernization and Fertility (theoretical expectations) 134
Figure 3.	Model II:	Economic Modernization and Fertility (theoretical expectations)
Figure 4.	Model III-A:	Fertility as a Brake on Economic Output (theoretical expectations)
Figure 5.	Model III-B:	Fertility as a Brake on Economic Growth (theoretical expectations)
Figure 6.	Model IV:	The Effects of Dependency Upon Fertility (theoretical expectations)
Figure 7.	Model I:	Social-Psychological Modernization and Fertility (computed values) 161
Figure 8.	Model II:	Economic Modernization and Fertility (computed values)
Figure 9.	Model III-A:	Fertility as a Brake on Economic Output (computed values)
Figure 10.	Model III-B:	Fertility as a Brake on Economic Growth (computed values)
Figure 11.	Model IV:	The Effects of Dependency Upon Fertility (computed values)

INTRODUCTION

This is an age of perceived crises. Beneath the daily headlines, there lurks a gnawing concern that ours is a time of juncture, when long-hidden forces will finally emerge triumphant to challenge--or even smash--our hopes of progress. Such fears may be entirely groundless. However, an expanding literature attests to their continued popularity.¹ Specific concerns receiving repeated attention include environmental degradation, resource depletion, underdevelopment, revolutionary warfare, and "unchecked" population growth. This thesis will be concerned with the last of these items. Yet because no social question can be scientifically comprehended in isolation from others, this investigation will necessarily touch upon some of these other issues as well. In particular, we will examine the debates on the sources of world poverty and the constraints on national development within the contemporary world-economy as these relate to the dynamics of population growth.

On numerical grounds alone, it is understandable that population growth has achieved status as a global issue. In recent decades, it has been unprecedented. As Freedman and Berelson (1974,31) have observed:

Today's situation is unique in mankind's experience: the highest growth rate in human history (about 2 percent per year) from the highest base in absolute numbers (nearly 4 billion). The world is currently adding nearly 80 million people per year, about as many as the population of the eighth-largest country (Bangladesh).

Recent estimates by the population council place the world's population in the year 2050 at between 6.5 and 8.5 billion, with over 90% of the newcomers

1

originating in the peripheral countries of the Third World, while the ultimate peak

... may not occur this side of the 10-to-15 billion range... The world would know an India of 1.4 billion population, a Brazil of 266 million, a Nigeria of 198 million ... over the next few decades roughly everything must be doubled just in order to stay even.

Such high rates of natural increase are thought by many to carry increasing responsibility for the plight of the Third World. By slowing down the rate of growth of the Gross National Product (GNP) per capita, increasing the social cost of education, and decreasing the proportion of the population in the economically productive age bracket, high growth rates are perceived as retarding economic growth and introducing a cycle of poverty for the "afflicted" nations (Hawkins, 1970). Freedman and Berelson (1974,35) adequately sum up the prevailing demographic view as follows:

In one underdeveloped country after another rapid population growth appears to increase the difficulty of working with limited human and material resources to solve the problems of food supply, of urban and rural employment, of providing minimal social services. The predominant view still is that rapid population growth is such a serious hindrance to development that the reduction of fertility rates will greatly enhance the possibility of social and economic progress.

But despite widespread concern, there is great disagreement over the precise role of population within the nexus of global problems. Statistically, the situation is clear enough: high rates of natural increase arise today from declining death rates without a matching decline in birth rates. Beyond that simple statement, the area is filled with controversy. Although almost everyone agrees that growth is linked with poverty, for example, there is little agreement on precisely what that linkage is. One school argues that "overpopulation" leads to poverty (i.e.—Hawkins, 1970), and another that poverty causes population growth (Mamdani, 1972).³ These differing perceptions imply radically differing

policy approaches. If one accepts that too many people create poverty, then the obvious remedy is to focus one's efforts on decreasing the birth rate by any means necessary. If one instead adopts the opposite perspective, then population growth becomes merely another consequence of poverty: a side effect that will disappear with the elimination of its root cause.⁴

In fact, no serious economic or demographic theory has ever actually argued that population growth was solely responsible for poverty, nor poverty entirely for population growth. Indeed, most have recognized that political and cultural factors influence both population trends and national income. Nevertheless, some have reasoned that "excessive" population growth burdens already poor countries with large numbers of economically dependent children who, while contributing little to production, consume resources that might have otherwise been applied to an expanded national output (Coale and Hoover, 1958). On the other side, it has been asserted that children are productive assets to families needing more income (Ahmed, 1974; Mamdani, 1972; Meilink, 1974). Particularly in labor-intensive agricultural areas, children may be the cheapest source of labor available.

These views need not be contradictory: what is rational at the level of the family may become counter-productive for the nation as a whole. (For example, many children who might be net producers for their families while young could, when they mature, lose access to their parents' land and find themselves joining the urban unemployed.) Using these or similar observations, it becomes easy to visualize a circular causal model of perpetual poverty, with "excessive" population growth continuously recreating the poverty that provides the economic pressure to have more children. These "vicious circles of poverty"

3

theories have been implicit within much of the post-War thought of Demography (c.f.--Coale and Hoover, 1958; International Bank for Reconstruction and Development (IBRD), 1974; United States State Department, 1978 a & b). Another less typical "neo-Malthusian" position is that children are net consumers instead of producers (Ben-Porath, 1974; Kogut, et al., 1975; Leibenstein, 1969, 1974, 1975). Consequently it is argued that high birth rates are sustained by cultural factors such as religion and sex roles, while the role of economic selfinterest is minimized (Cutright, et al., 1976, 1978). Taking note of the fact that it is the fall in death rates that has caused the imbalance--birth rates having remained the same sometimes for generations--backers of this position have emphasized the persistence of "traditional" pro-natal values inherited from a more dangerous past.

By contrast, supporters of the position that poverty creates population growth argue that children are net producers (cheap labor), hence for them economic forces are central, while culture remains incidental.

Despite these nuances, the central issue remains the nature of the linkage between population growth and poverty. Over the past 15 years, this issue has become interlocked with a much more fundamental question: the sources of world poverty itself.

"MODERNIZATION" vs. "DEPENDENCY" THEORY

After WWII, the steady stream of former European colonies granted formal independence encouraged a series of Western economists and sociologists to devote their attention to the question of "nation-building"--spawning the areas of "development economics" and "modernization" theory respectively. For both, the guiding conception was that judicious economic and social policy within these new states could accelerate processes that would hopefully lead toward selfgenerated growth in the economy, national income, and "Western"/capitalist⁵ modes of production and life-styles. From an economic standpoint, a major objective of the modernization process was the creation of sufficient household income to sustain both investment (by boosting effective demand) and eventually "mass consumption" (Coale and Hoover, 1958; Lewis, 1955; Rostow, 1963). Within this perspective, rapid population growth has traditionally been seen as inimical to this objective because it raises the ratio of "unproductive" children to "productive" adult workers, resulting in a loss of per capita income. By retarding economic growth, rapid population growth therefore becomes a barrier that must be broken if modernization is to succeed.

Historically, a hallmark of the modernization approach has been its focus on the internal dynamics of social systems. Thus in their search for the sources of poverty, modernization theorists have tended to focus on the persistence of "traditional culture" blocking the acceptance of "innovative" ideas and progressive change.⁶ It is within this context that the attitude of many of them toward population growth should be placed. High fertility is for them yet another example of how traditional internal patterns of behavior can stand in the way of progress.

5

Over the past 25 years, "dependency" theory has gradually evolved in opposition to modernization theory's analysis of and prescriptions for world poverty (Booth, in Oxaal, et al., 1975). Instead of perceiving poverty as arising primarily from internal failures, it directs its attention to the interaction between internal and external political and economic structures, simultaneously downplaying the role of "traditional" culture. Within the dependency perspective, poverty in the "Third World" is thought to arise primarily from the systematic transfer of wealth out of the world's poor countries (the "periphery") and into the powerful metropoles (Amin, 1974, 1976, 1977b, 1977c; Frank, 1964, 1967, 1969, 1972, 1978; Wallerstein, 1976, 1979, 1980). Foreign investment by large transnational corporations is usually seen as the central mechanism behind this continuous drain of value, although such investment is itself understood as simply a manifestation of the uneven development characteristic of capitalism The interactions between individual nations are thought of as as a whole. collectively forming a unified, planetary--and capitalist--world market. Within this world-system, countries, corporations, and individuals are arranged into a coercive hierarchy of wealth and power homologous to that within individual capitalist countries outlined by Marx (c.f.--Galtung, 1971; Hveem, 1973).

Because dependency theory attributes poverty to the structure of the world-economy as a whole, most dependency theorists have not paid much attention to the role of population growth, excepting occasional polemics against the more simplistic advocates of Third World birth control. Mamdani (1972) is perhaps the first theorist to have made a systematic effort to analyze and document the pressures that poverty places on the poor to have children, and even his work is limited to a case study of one Indian village.⁷ However, the general thrust so far is that population growth is an outgrowth of poverty that plays no important role in its perpetuation.

PLAN OF THE WORK

The close ideological connection between these opposed diagnoses of poverty and their respective positions on population will form the basis for this thesis. While the specific objective is limited to empirically testing some of the central demographic predictions of both approaches, the overall goal is to provide the components for a theory of population dynamics consistent with the insights from the global perspective provided by dependency theory. At present, such a theory has yet to be developed.

The rest of this thesis is divided into five chapters. The first will examine the literature on population that preceded WWII. Here we will concentrate on the debate between the Malthusians and the Marxists; although attention will also be given to others who preceded or otherwise stood outside of the debate. The second will trace out the perspective of the modernization theorists on population, while the third will look at the contribution of dependency theory.

The remaining two chapters will be devoted to examining selected social, political, and economic indicators on 78 independent nations recorded for 1965. Various statistical tests will be employed to illustrate relationships between a given country's degree of "modernization," "dependency," and rate of natural increase of its population. While far from conclusive, it is hoped that these tests will show that the overall hypothesis of a causal connection between "dependency" and population growth cannot be ruled out, and, indeed, may be substantially stronger than the more orthodox explanations of demographic behavior found in the "modernization"/"development" literature.

7

NOTES TO THE INTRODUCTION

¹Some notable examples are <u>The Human Prospect</u> (Heilbroner, 1974); <u>The Limits</u> <u>to Growth</u> (Meadows, et al., 1972); <u>The Doomsday Syndrome</u> (Maddox, 1973); <u>Models of Doom</u> (Cole, et al., 1973); <u>The Closing Circle</u> (Commoner, 1971); <u>Ark II</u> (Pirages and Ehrlich, 1974); and <u>The Poverty of Power</u> (Commoner, 1977).

²All statistics and quotes from Freedman and Berelson (1974).

- ³Of course these relationships can be perceived as being mutually causal, a point to which we will return below.
- ⁴The implicit assumption underlying the one position is that population growth is to be avoided, whereas the other considers it neutral at best. Yet there have been occasions when it has been actively encouraged--usually in response to some perceived political or economic threat. Some examples include Mercantilist thought in Europe (e.g.--population growth=more labor=more wealth), contemporary governments in Eastern Europe worried about an impending labor shortage, England during the Thirties (also concerned about labor availability), and some Black, Chicano, and Native American groups in the United States today (hoping to increase their political power).
- ⁵This fundamental objective is revealed by the subtitle of Rostow's classic: <u>The</u> <u>Stages of Economic Growth: A Non-Communist Manifesto</u>.
- ⁶See especially the summary of the "psychological approach" to the modernization process found in Chodak (1973).
- ⁷However, his work is not entirely alone. See also Baran (1957,237-248), DeCastro (1977), Folbre (1977), Gimenez (1977), Gonzalez and Fernandez (1979), Kersten and Wohlmuth (1973), and Mass (1976).

CHAPTER ONE

THE HISTORIC EVOLUTION OF THE POPULATION QUESTION

I. INTRODUCTION AND SUMMARY OF THE ARGUMENT

The idea that the human population could grow large enough to threaten its own means of subsistence is relatively new. The issue did not really take shape before the 18th Century. Until that time the literature is only scattered and fragmentary; and when optimal population size is discussed at all it is usually within the context of efficient governance or stronger armies. Aristotle, for example, considered population size as it affected the ideal city-state: he wanted it small enough that its citizens might know each other, considering that

... it must have a population large enough to cater for all the needs of a self-sufficient existence, but not so large that it cannot be easily supervised. Let that be our way of defining the size of a city (Aristotle, 1962, 266).

However, starting in the mid-1700's, a nascent concern with population growth began to emerge within England and France¹, and by the early 19th Century had become a full-fledged debate over whether population growth was, in fact, pressing against food supply, or whether instead food was simply being inefficiently produced and distributed. Most of the participants in this debate were Englishmen and the issue, at heart, reflected the growth of England's poor.

England was, of course, entering into one of the most brutal periods of its industrialization during this time. Vast numbers of agricultural workers were being swept off the land by rising productivity, land concentration, and the enclosure acts. Swelling the slums of England's cities, the lucky found sporadic factory work, while most starved at least occasionally (Bruenig, 1970, chapter 6; Marx, 1967, vol. 1; Palmer, 1954, 432). By all accounts the growth rate of the cities was immense. Bruenig (1970, 203) reports that

Between 1801 and 1850, ... the population of Manchester rose from 77,000 to 303,000; that of Liverpool, from 82,000 to 397,000; and that of Birmingham, from 71,000 to 242,000.

Considering the speed at which this combination of urban migration and natural increase transformed the cities, e.g.—the total population of England and Wales tripled from 1750 to 1850 from 6 million to 18 million (Bruenig, 1970, 206), it is not surprising that there was a sudden concern with the effects of population growth. The appearance of such large masses of urban poor was historically unprecedented, and, presumably, so was the demand that their presence placed upon the primitive social services of the time. How they arose and what to do about them became pressing questions of public policy. Against this background, the belief that their poverty arose from their vast numbers must have seemed elegant and appealing. Yet even then, such theories were sometimes attacked as oversimplifications designed to sidestep responsibility for the care of the poor.

The debate between the Malthusians² and their attackers is significant because the basic lines of argument laid down then--and especially their ideological roots--still appear today. On the one hand, the unspoken assumption of those concerned by population pressure was that the youthful capitalism of the time was basically efficient in allocating food--or at least as efficient as any human production system could reasonably hope to be. If people were starving and poor, there must have been too many of them. Furthermore, the problem of their numbers was thought compounded by their perceived idleness and lack of frugality. This "blaming the victim" attitude is apparent in the following statement of Malthus's (Appleman, 1976, 40):

The labouring poor, to use a vulgar expression, seem always to live from hand to mouth. Their present wants employ their whole attention, and they seldom think of the future. Even when they have an opportunity of saving they seldom exercise it, but all that is beyond present necessities goes, generally speaking, to the ale-house.

Those who attacked this position, on the other hand, saw poverty as an outgrowth of human institutions, not nature. Seeing capitalism as arbitrary, unjust, and wasteful, they thought that the suffering of the poor reflected not their numbers but their exploitation. Godwin, for example, wrote in <u>The Inquirer</u> (1979) that

It is a gross and ridiculous error to suppose that the rich pay for anything. There is no wealth in the world except this, the labour of man. What is misnamed wealth, is merely a power vested in certain individuals by the institutions of society, to compel others to labour for their benefit . . . (the poor)₃ support the burthen (sic); but they come in for no share of the fruit.

The radical restructuring of society would, they felt, not only eliminate poverty,

but unleash forces of agricultural productivity that would make the concern with population laughable.⁴

Malthus himself was sensitive to these ideological distinctions as indicated by his characterization of the attitudes of both sides toward one another, in a

passage that is worth quoting in full:

The advocate for the present order of things is apt to treat the sect of speculative philosophers either as a set of artful and designing knaves who preach up ardent benevolence and draw captivating pictures of a happier state of society only the better to enable them to destroy the present establishments and to forward their own deeplaid schemes of ambition, or as wild and madheaded enthusiasts whose silly speculations and absurd paradoxes are not worthy the attention of any reasonable man.

The advocate for the perfectibility of man and of society retorts on the defender of establishments a more than equal contempt. He brands him as the slave of the most miserable and narrow prejudices; or as the defender of the abuses of civil society only because he profits by them. He paints him either as a character who prostitutes his understanding to his interest, or as one whose powers of mind are not of a size to grasp anything great and noble, who cannot see above five yards before him, and who must therefore be utterly unable to take in the views of the enlightened benefactor of mankind (Malthus, in Appleman, 1976, 17).

II. PREDECESSORS TO MALTHUS

Long before the first salvos of this post-Enlightenment debate were heard, the subject of the numbers of the human population did indeed crop up. But as was pointed out before, the context of these sporadic discussions was usually something other than threats to human survival. The first writer to seriously deal with the question was Giovanni Botero (1544-1617) (Ambirajan, 1959, 37; Perelman, 1975, 248).⁵

Botero was at heart a Malthusian, believing that a rising population brings with it crime, disease, pollution, and high rates of infant mortality (Botero, 1956, 156, 278f). His conclusion was that fertility should be discouraged "if the world would be governed by reason," but that because "... through the corruption of human nature, ... force prevails above reason, and arms above laws ... " military considerations necessitate a larger population than would otherwise be desirable (Botero, 1956, 274).

The following century saw no major theoretical additions to Botero's ideas. Sirs Walter Raleigh (<u>History of the World</u>, 1614) and Francis Bacon both agreed that the world was overpopulated. Raleigh went so far as to suggest that a beneficial side-effect of wars was population reduction (!), while Bacon argued that the state should prevent population growth from exceeding "the stock of the kingdom which should maintain them" (Ambirajan, 1959, 37). But on the whole, population growth was not considered a major problem. In fact, most writers on the question---including Quesnay, Hume, Sir William Petty, and Captain John Graunt--seemed to feel that a large population reflected a healthy and prosperous economy (Ambirajan, 1959, 37f; Appleman, 1976, 3).⁶

III. INITIAL FORMULATIONS OF THE MALTHUSIAN DOCTRINE

With the maturation of the "Enlightenment" this attitude was dramatically transformed. A century of triumphant capitalism had brought with it major changes in production and population, and the latter began to swell and shift with increasing strength. For Europe as a whole "according to one plausible estimate, the increase for the century totaled about three fifths, from around 120 million to around 190 million, with two thirds of the increase coming after 1750" (Krieger, 1970, 118). Most of these, in turn, were the landless poor (Krieger, 1970, 311).⁷

It was against this background that the Reverend Robert Wallace (1753, 1761) produced the first truly Malthusian analysis of population and poverty. In fact, his argument largely anticipated Malthus's: national wealth and abundance both allows for and encourages an increasing population--yet such increases suppress per capita food supply, which acts to reduce population growth (Appleman, 1976, 4f). The result is a tendency toward an equilibrium between population and food supply that ensures the existence of poverty. Yet he was also aware of the importance of social structure in affecting demographic patterns, as witnessed by his comment that "Besides the nature of the climate or soil, the number of people in every country depends greatly on its political maxims and institutions concerning the division of lands" (Appleman, 1976, 4).

Other Enlightenment writers shared Wallace's Malthusian orientation, including Benjamin Franklin, Joseph Townsend, and Adam Smith (Ambirajan, 1959, 40f). Smith, however, was a little more optimistic than Wallace, believing that rapid economic growth could offset population growth (Wilber, 1977, 4). In fact, overall, Smith's understanding of the dynamic between demography and economy was considerably more complex. It started with the observation of class differences in fertility:

A half-starved Highland woman frequently bears more than twenty children, while a pampered fine lady is often incapable of bearing any, and is generally exhausted by two or three. . . Luxury in the fair sex, while it inflames perhaps the passion for enjoyment, seems always to weaken, and frequently to destroy altogether, the powers of generation (Smith, 1976, 88).

Although high mortality of course dampens natural increase among the poor, they still are the most rapidly growing sector of society. This, Smith felt, acts to raise the supply of laborers, thus lowering their wages. As low wages increases infant mortality, the numbers of the working class will fall, ultimately causing a labor shortage that will bring wages up again (Smith, 1976, 89). On the other hand

The liberal reward of labour, by enabling them (workers) to provide better for their children . . . must necessarily encourage in such a manner the marriage and multiplication of labourers, as may enable them to supply that continually increasing demand by a continually increasing population (Smith, 1976, 89).

Such an increase will bring wages back down again. In short:

It is in this manner that the demand for men, like that for any other commodity, necessarily regulates the production of men; quickens it when it goes on too slowly, and stops it when it advances too fast (Smith, 1976, 89).

It follows, therefore, that a populous nation is a sign of a healthy and expanding economy (Ambirajan, 1959, 38). Furthermore, if economic expansion outpaces population growth, then it can allow wages and population both to expand with it, removing the necessity of starvation (Smith, 1976, 90-91). For this reason it can be said that Smith was a "Malthusian with a difference" (Ambirajan, 1959, 39), for he was far more optimistic than was Malthus on the necessity of poverty.

IV. THE ATTACK ON MALTHUSIANISM: (A) CONDORCET AND GODWIN

The difference between Smith and Malthus is negligible when contrasted with the positions of Condorcet and Godwin. The important legacy of the Enlightenment of course is the acceptance of the idea of progress: that both natural and human affairs were amenable to intelligent manipulation and improvement. Condorcet and Godwin both reasoned that progress in social organization and science would ultimately destroy most of the ills of their respective societies, culminating in a secular heaven of peace and abundance. The main barrier to such a transformation was the existence of private property (c.f.--the statement of Godwin's quoted above).

In his <u>Sketch For A Historical Picture Of The Progress Of The Human Mind</u> (1795), Condorcet believed that as rationality increased and superstition declined, production and distribution would also improve to grant increasing equality and leisure time (Ambirajan, 1959, 29). Such beliefs made him extremely unsympathetic to those who accepted poverty as the human lot. Population growth need be no obstacle to welfare: rising productivity from better technology will create a world where

... not only will the same amount of ground support more people, but everyone will have less work to do, will produce more, and satisfy his wants more fully (Condorcet in Appleman, 1976, 8).

Of course, in spite of this growth of science and "reason," natural limits to population size can occur. Should that distant time arrive, it will presumably be met with enlightened programs of birth control.⁸

Godwin shared this perspective, feeling that private property, via concentrating the control of land and distorting its use, created starvation--<u>not</u> too many people <u>per se</u> (Ambirajan, 1959, 32). His <u>Political Justice</u> (1793) was in part a direct response to Wallace's theories (in turn prompting Malthus to reply with <u>his</u> essay) (Wilber, 1977, 3). He, like Condorcet, was deeply angered by the suggestion that poverty was either "natural" or unavoidable. In 1820, long after Malthus's <u>Essay</u> had been popularly received and undergone several revised editions, he wrote bitterly

(After the publication of <u>Political Justice</u>) . . . I hailed the attack of Mr. Malthus. I believed, that the <u>Essay</u> on <u>Population</u>, like other erroneous and exaggerated representations of things, would soon find its own level. In this I have been hitherto disappointed . . .

Between the advantages and disadvantages attendant on the state of man on Earth there is one thing that seems decisively to turn the balance in favour of the former. Man is to a considerable degree the artificer of his own fortune . . . (but) the main and direct moral and lesson of the Essay on Population, is passiveness . . . (Godwin in Appleman, 1976, 143f).

Although Godwin and Condorcet were often at the time considered as "wild and madheaded enthusiasts" (c.f.--Malthus above), their ideas on population were to re-emerge with Marx and triumph even among neo-classical economists in the latter 19th Century (Wilber, 1977, 9; Meilink, 1974, 6).

V. THE MALTHUSIAN DOCTRINE PROPER: MALTHUS'S COUNTERATTACK AND DEFENSE OF WALLACE

By the time of the earliest publication of Malthus's <u>An Essay on the</u> <u>Principle of Population, as it Affects the Future Improvement of Society. With</u> <u>Remarks on the Speculations of Mr. Godwin, M. Condorcet, and Other Writers</u> (1978), the debate was well underway. In contrast to the relative equanimity with which Smith and even Wallace viewed population growth, Malthus was distinctly pessimistic. Wilber (1977, 5) notes that "It was Malthus who transformed the contest between man and nature from a light-hearted sparring match into a struggle to the death. Malthus's essay on population could have been entitled, <u>An Inquiry Into the Nature and Causes of the Poverty of</u> Nations."⁹

Malthus's argument started with the observation that food is necessary to survival and that "... the passion between the sexes is necessary and will remain nearly in its present state" (Appleman, 1976, 19). Furthermore,

Population, when unchecked, increases in a geometric ratio. Subsistence increases only in an arithmatic ratio. A slight acquaintance with numbers will shew the immensity of the first power in comparison of the second.

By that law of our nature that makes food necessary to the life of man, the effects of these two unequal powers must be kept equal (Malthus, in Appleman, 1976, 20).

Consequently there must be a continual series of "checks" on the growth of population, and which "must necessarily be severely felt by a large portion of mankind" (Malthus, in Appleman, 1976, 20). In order to portray his harsh view of the struggle for existence, he paints a grim picture of its consequences through history. His description of the fall of Rome under the famine-driven hordes of nomadic barbarians is particularly inspired:

Gathering fresh darkness and terror as they rolled on, the congregated bodies at length obscured the sun of Italy and sunk the whole world in universal night. These tremendous effects, so long and so deeply felt throughout the fairest portions of the Earth, may be traced to the simple cause of the superior power of population, to the means of subsistence (Malthus, in Appleman, 1976, 28).

This unavoidable state of population pressure operates continuously, and

"... no possible form of society could prevent the almost constant action of misery upon a great part of mankind, if in a state of inequality, and upon all, if all were equal" (Malthus, in Appleman, 1976, 26).

But of course society is <u>not</u> egalitarian, and during Malthus's time the inequalities were glaring. He viewed the situation as natural and appropriate--

after all, (he thought) were the misery of population pressure to be allocated equally civilization would have never arisen. Instead, the search for food would demand all of our attention. For those who argued that social and economic equality could eliminate starvation, he had nothing but scorn. The temporary alleviation of poverty that followed would be quickly cancelled out by an increase in population, leaving society worse off than before:

Man cannot live in the midst of plenty. All cannot share alike the bounties of nature. Were there no established administration of property, every man would be obliged to guard with force his little store. Selfishness would be triumphant. The subjects of contention would be perpetual. (Malthus, in Appleman, 1976, 67).

And later he adds:

The great error under which Mr. Godwin labours throughout his whole work is the attributing almost all the vices and misery that are seen in civil society to human institutions. . . But the truth is, that though human institutions appear to be the obvious . . . causes . . . yet in reality they are light and superficial, they are mere feathers that float on the surface . . . (Malthus, in Appleman, 1976, 66).

Left to itself, the interaction between population growth and poverty generates a Smithian economic oscillation: increasing population raises the price of food while simultaneously depressing the cost of labor; in turn increasing mortality and reversing the process (Malthus, in Appleman, 1976, 24f). Thus population pressure acts to keep the price of labor near its reproduction cost--the bare minimum necessary to survival.

But the process was <u>not</u> left to itself. Since the 16th Century, England had possessed a slowly evolving corpus of welfare legislation known as the Poor Laws. In the 17th and 18th Centuries these laws had undergone a rapid series of changes as Parliament struggled to cope with the increasing flood of both urban and rural poor. By Malthus's time, direct relief was being administered to the poor, making up the differences between their real wages and the price of bread. The system encouraged the payment of wages lower than subsistence, generating even more poverty (Malthus, 1960, intro., 22–23; Meek, 1953, 14f).

As far as Malthus was concerned, the Poor Laws profoundly interfered with the "natural" regulation of prices and labor.¹¹ First, they were inflationary: by assuring survival for an unnaturally large number of poor, they strained agricultural production and raised food prices. Since agricultural production was, he believed, operating already at peak capacity, its output would be inflexible to price changes, so rising prices would not lead to an increase in supply (Malthus, in Appleman, 1976, 41f). Secondly, by providing a (relatively) greater security to life, the Poor Laws diminished the incentive to work, inducing idleness among the poor (Malthus, in Appleman, 1976, 38, 40f). Finally, because their administration required an inquisitive bureaucracy and rising taxation, they encouraged "a species of tyranny" in the actions of the state (Malthus, in Appleman, 1976, 42). His proposed solution was an elimination of all of the Poor Laws, a return to laissez faire, and (despite his abhorrence of government regulation) incentives for agricultural production: the natural oscillation around the subsistence wage would again resume, and agricultural production would increase (Malthus, in Appleman, 1976, 43). For the destitute he suggested work-houses of harsh conditions, to discourage people from resorting to them too readily.

Basically, Malthus saw human society as a feeble guard against a hostile nature, and felt that the general contours of English society as he knew it--i.e.-the distribution of power, inequalities between classes, and widespread poverty--were unavoidable and as reasonably fair as any society could hope to be. Improvements could, of course, be made (such as the abolition of the Poor Laws), but ultimately human life was at the mercy of grand natural forces whose cruelty we could deplore but not eliminate. Obviously, those who argued for radical changes were well-intentioned but misinformed.

Malthus caught the mood of classical economists--Smith, Riccardo, and Mill all explained poverty with reference to the impact of population on physical scarcity (Wilber, 1977, 3)--so his popularity among his contemporaries within establishment circles is not surprising. Riccardo, for example, despite frequent and bitter disputes on other questions (Meek, 1953, 18f), incorporated Malthusian theory in attacking the Poor Laws (Wilber, 1977, 18f).

Fifty years later, John Stuart Mill could still generally agree with Malthus. Like Malthus, he felt that an increase in population must lower the food supply available per capita, and that no movement toward a more egalitarian society alone could change that fact (Malthus, in Appleman, 1976, 151): "The niggardliness of nature, not the injustice of society, is the cause of the penalty attached to overpopulation . .. " And any increase in relative wealth brought about by socialism would quickly be destroyed by a consequent increase in population. Thus population growth merely increases poverty by lowering both wages and the availability of food (Appleman, 1976, 153f). An important shift is seen, however, in the fact that Mill endorsed contraception, a practice Malthus viewed as immoral and "vicious," and felt that in conjunction with education it could radically alter the situation (Wilber, 1977, 9). With this major revision, orthodox economy finally conceded that the elimination of poverty was possible. With most economists following his lead, the population question-having now been thought solved-lapsed into a 70-year period of dormancy among orthodox economists (Wilber, 1977, 9).

VI. THE ATTACK ON MALTHUSIANISM: (B) THE MARXIST ATTACK ON MALTHUS

With the publication of <u>The Origin of Species</u> (1859), Malthusian doctrine found itself sanctified by the apparent confirmation of natural science. Once the "struggle for existence" had entered the intellectual vocabulary, it seemed self-evident that Darwinian principles applied to human society as well.¹² With this marriage of Malthusian and Darwinian doctrine, competition became perceived as the mainspring of history (Appleman, 1976, 157).

Against this background, Marx and Engels took up the battle against Malthusianism originally pursued by Godwin. Their target was less Darwin <u>per</u> <u>se</u>, and more the (then) popular vulgarized integration of a distorted "social" Darwinism with Malthusianism. (In fact, they greatly admired Darwin himself (Giddons, 1971, 66).) First, Engels (in <u>The Dialectics of Nature</u>) charged that Darwin had himself greatly overestimated the role of population pressure in natural selection. To be sure, such pressures occur and do indeed act to suppress some species and favor others. However, superior adaptation to a given niche can also reflect cooperation, symbiosis, and predator-prey relationships as well (Meek, 1953, 175, 188). These phenomena indicate that adaptation is influenced by many forces, of which overpopulation is but one.

Second, both Marx and Engels accused Darwin of anthropomorphizing nature. In particular, they perceived him to be taking Hobbesian ideas, projecting them onto nature, and then "... the same theories are next transferred back again ... to history and their validity as eternal laws of human society declared to have been proved" (Engels, in Meek, 1953, 176). "It is remarkable," wrote Marx sarcastically to Engels in 1862,

That Darwin recognizes among brutes and plants his English society

with its division of labour, competition, opening up of new markets, "inventions" and Malthusian "struggle for existence" . . . with Darwin the animal kingdom figures as bourgeois society (Meek, 1953, 173).

This second, more serious objection, was less an attack on Darwin's ideas about <u>nature</u> than it was on "Darwinism" as a <u>social</u> philosophy (as in, for example, the writings of Herbert Spencer). For it ignored what they felt was the fundamental distinction between humans and nature: "that animals are at most gatherers whilst men are producers" (Meek, 1953, 176). In other words, people control their own food supply by regulating the conditions of its production. This, after all, is the primary purpose of social organization. Animals, on the other hand, are dependent for their food upon conditions beyond their control. Unlike animals, therefore, people have the ability to create their own history, whereas that of animals must be created for them. For Engels, "this single but cardinal distinction alone makes it impossible simply to transfer the laws of animal societies to human societies" (Meek, 1953, 176).

Finally, Marx and Engels objected--as they did so often in their attacks on orthodox economists--to the use of "ahistorical" categories and laws to describe the shifting relations of human society. In a long section of Engels' letter to Lange (Meek, 1953, 81), he summed up their view of "Darwinian" social philosophy with special attention to this point:

I too was struck, the very first time I read Darwin, with the remarkable likeness between his account of plant and animal life and the Malthusian theory. Only I came to a different conclusion from yours: namely, that nothing discredits modern bourgeois development so much as the fact that it has not yet succeeded in getting beyond the economic forms of the animal world. To us so-called "economic laws" are not eternal laws of nature but historic laws which arise and disappear ... to us also, therefore, none of these laws, in so far as it expresses <u>purely bourgeois conditions</u>, is older than modern bourgeois society; those which have hitherto been more or less valid throughout all history only express just those relations which are common to the conditions of all society based on class rule and class exploitation. To the former belongs the so-called law of Riccardo, to the latter belongs what is tenable in the so-called Malthusian theory.

The basic dispute between Marx, Engels, and the theories of Malthus was grounded in their different perceptions of the sources of poverty. Whereas Malthus clearly saw poverty arising from the forces of nature, Marx and Engels (like Godwin before them) saw it arising from social injustice. They felt that the environment itself was quite capable of supplying humanity with sufficient food--were it only managed properly. Addressing this point, Engels asks: "Where has it been proved that the productivity of the land increases in arithmatic progression?" (Engels, in Meek, 1953, 63). "The productivity of the land increases daily; labour power grows together with population, and science masters natural forces for mankind to a greater extent every day." (Engels, in The primary technical problems arise merely from the Meek, 1953, 58). irrational application of scientific methods to agricultural production; uneven development; and waste--all outgrowths of capitalist production methods--not from the absolute infertility of the land. "Overpopulation" is, in turn, another outgrowth of capitalist production--the generation of an ever-larger surplus population of unemployed. (We shall return to this point below.)

Furthermore, the enactment of social policies based upon Malthus's principles (such as the revision of the Poor Laws) not only missed the mark, but was to punish those who were already the most victimized by the ravages of capitalism. For example, Engels in the <u>Condition of the Working Class of England in 1844</u> quotes from a Parliamentary document called "Information Received From the Poor Law Commissioners" (1833) to the effect that the former laws were:

... a check upon industry, a reward for improvident marriage, a stimulus to increased population, and a means of counterbalancing the effect of an increased population upon wages; a national provision for discouraging the honest and industrious, and protecting the lazy, vicious, and improvident ... (Meek, 1953, 71).

An attitude that led Marx to observe:

With this humane theory the English Parliament combines the view that pauperism is <u>poverty which</u> the workers have brought on themselves, and that it should therefore be regarded not as a calamity to be prevented but rather as a crime to be suppressed and punished (Meek, 1953, 67).

In an attempt to summarize what he felt was the true cause of poverty,

Engels pointed out that

Too little is produced, that is the cause of the whole thing. But why is too little produced? Not because the limits of production--even today and with present means--are exhausted. No, but because the limits of production are determined not by the number of hungry bellies but by the number of <u>purses</u> able to buy and to pay. Bourgeois society does not and cannot wish to produce any more. The moneyless bellies, the labour which cannot be utilized for profit and therefore cannot buy, is left to the death-rate (Meek, 1953, 82).

On a superficial level, Malthus would have agreed with Marx and Engels that poverty arose because the demand for labor fell behind the supply, leading to a drop in wages below subsistence.¹³ Their differences lay in explaining the gap between supply and demand for labor. Malthus blamed it on human fertility (outpacing not only employment but food supply as well), while Marx and Engels blamed it instead on an artificial "surplus population" caused by automation.¹⁴ For them, the origin of this increasing surplus population was to be found in the mechanism of capitalism itself. In their struggle to accumulate and stay ahead of their competitors, individual capitalists seek to maximize their profits in any way possible. The simplest strategy is to lower the cost of production. Keeping wages low was of course one common tactic, but it is limited by the reproduction cost of labor: workers must survive if they are to continue to work. The other,
preferable tactic available to those who could afford it, was the substitution of the workers by machines. As the technology of the 19th Century was growing more sophisticated by leaps and bounds, this latter tactic became increasingly successful as well as increasingly available. The automation of production constituted what Marx referred to as the replacement of "variable" capital (labor) by "fixed" capital (machines), and its net result was to have the demand for labor lag increasingly farther behind the supply of total capital:

Since the demand for labor is determined not by the amount of capital as a whole, but by its variable constituent alone, that demand falls progressively with the increase of the total capital, instead of . . . rising in proportion to it (Marx, 1967, vol. 1, 629).

During boom periods, the relative decline in variable capital is masked by its absolute increase. But as the accumulation of capital throughout the society advances, so does its concentration and centralization into the hands of those who can afford automation. Hence automation tends to accelerate (Marx, 1967, vol.1, 629f). Its progression and spread led Marx to observe that

The whole form of the movement of modern industry depends, therefore, upon the constant transformation of a part of the labouring population into unemployed or half-employed hands (Marx, 1967, vol.1, 633).

That Marx could say that industry does not merely <u>create</u> but <u>depends</u> upon a surplus population is a reflection of his perception of the effect of that population: to lower wages, thus enabling industry to produce things more cheaply than would otherwise be possible (hence enlarging the market) (Meek, 1953, 78).¹⁵

For Marx and Engels, this conception of the creation of the surplus population ("the reserve army of the unemployed") directed the explanation of poverty away from population growth itself and toward the growth of capitalism instead. In his <u>Theories of Surplus Value</u>, Marx reviewed Smith's and Malthus's views on population (Meek, 1953, 79). Smith, who saw the demand for labor rising along with the accumulation of capital; and Malthus, who saw population growth outpacing that accumulation; both recommended small families as in the interest of the working class (by ultimately increasing wages). Marx's beliefs informed him that the opposite was the case. True, a shrinking supply of labor would indeed force up wages, but this temporary boon would be quickly offset by the encouragement that it would give to automation: it "would therefore create a surplus population—a surplus which is caused not by a lack of means of subsistence but by a lack of means for the employment of workers, a lack of demand for labor" (Meek, 1953, 80).¹⁶

The labouring population therefore produces, along with the accumulation of capital produced by it, the means by which itself is made relatively superfluous, is turned into a relative surplus-population; and it does this to an always increasing extent. This is a law of population peculiar to the capitalist mode of production; and in fact every special historic mode of production has its own special laws of population, historically valid within its limits alone. An abstract law of population exists for plants and animals only, and only in so far as man has not interfered with them (Marx, 1967, vol.1, 631-32).

With respect to the dynamics of population growth itself, Marx and Engels had little to say. They did, however, observe that fertility was highest among

the poor:

... not only the number of births and deaths, but the absolute size of the families stand in inverse proportion to the height of wages, and therefore to the amount of means of subsistence of which the different categories of laboures dispose. This law of capitalistic society would sound absurd to savages, or even civilized colonists. It calls to mind the boundless reproduction of animals individually weak and constantly hunted down (Marx, 1967, vol.1, 643).

As far as population growth beyond the confines of capitalism was concerned,

Engels remarked to Kautsky that it was an "abstract possibility" that it could one

day threaten survival and development under Communism. Were such a day to arrive, he was convinced that society would find itself able to "regulate the production of human beings, as it (had) already become able to regulate the production of things" without difficulty (Meek, 1953, 109).

VII. SUMMARY OF THE DEBATE

The ideological gulf separating these original Marxist economists from the classical economists on the population question was precisely the gulf separating Malthus from Condorcet and Godwin a generation before. The fundamental issue was the degree of control that human beings could exercise over their society and its environment. Overlaid on top of this was the degree to which specifically capitalist society was efficient in its allocation of resources and control over human relations. Where the early Malthusians felt that the frailty of human institutions made them a poor defense against the power of natural forces, Marx, Godwin, (et al.) clearly saw these "natural" forces as products of human activity instead--hence amenable to human accommodation if not control (accommodation in Godwin's case, control in Marx's.).

We shall see later on that the more sophisticated "neo-Malthusians" of the contemporary era no longer doubt the power of humanity to control its own destiny, although there is still a tendency to perceive population growth as a massive wave of humanity growing with the same thoughtless "natural" force as do bacteria in a petri dish. Indeed, the calls for birth control reflect nothing if not the faith that human technology can save us from ourselves. Today the debate seems to have shifted entirely over to a separate issue: whether the social formations of peripheral capitalism are adequate to the task of assisting their citizens in achieving freedom from poverty, and if so, how. Once again, indeed, the issue is whether their poverty is due primarily to their numbers or to their mode of production.

It is interesting to note that, outside of the intrinsic enjoyment of sex, no theorist--from Aristotle to Keynes--paid any serious attention to the <u>sources</u> of population growth. It just somehow <u>happened</u>. That all of these thinkers should have seen it as exogenous to the state of both economy and society (with the possible exception of Marx) is somewhat amazing from our present perspective. It was not until after WWII, when population growth was seen as a serious obstacle to development, that demographers and economists began to thoroughly explore this problem, and we shall return to them in subsequent chapters.

In the next chapter we shall turn away from the advanced European countries, and instead examine the peripheral countries of the world-economy (the "Third World"). Their problems of development after WWII gave rise first to Modernization theory; then, later, to Dependency theory as attempts were made to understand (and solve) their predicament. The apparent parallel between their rapid population growth and their economic problems breathed new life into Malthusian theory, and it served as a convenient theoretical escape-hatch for many a perplexed development economist. Others of the Dependency persuasion attacked these theories, arguing that the root of their problems lay elsewhere. We shall now turn to the development of this established debate as it has reappeared in new form.

NOTES TO CHAPTER ONE

- ¹Both of which collectively constituted the undisputed core countries of the emerging world-economy at that time.
- ²"Malthusian" is used here as a sort of generic term. Malthus himself was merely one of a group of thinkers (which included A. Smith) that both preceded and followed him. But because his name is so frequently associated with his ideas on population, it is convenient to use it as a label.
- ³Found in Appleman (1976, 10). Note the similarity to this remark made 48 years later by Engels, in his <u>The Condition of the Working Class in England</u> (1845) (Meek, 1953, 70): "The workers have taken it into their heads that they, with their busy hands, are the necessary, and the rich capitalists, who do nothing, the surplus population."
- ⁴This great rift in assumptions and ideological orientation has surfaced once again in the current debate on the merits of birth control programs today in the Third World. The next chapters will examine that debate more closely.
- ⁵Botero, a sometimes Jesuit professor of philosophy and rhetoric, wrote two major books on politics, history, and statecraft: Reason of State (1589), and The Greatness of Cities (1588). Although they were apparently considered neither brilliant nor terribly original, they seemed to have been widely circulated (Reason of State went through 21 editions in 4 languages), and are probably not too far away from the thinking of the time (Botero, 1956, ed. intro., 89).

⁶An attitude quite consistent with the reigning mercantilism of the day.

- ⁷This historically unprecedented increase was concentrated primarily among the poor.
- ⁸There is some room for interpretation on this point. I perceived an endorsement of contraception in the following passage, where Condorcet explains his expected response to overpopulation in a society governed by reason: that such a problem could be avoided given that

... the progress of reason will have kept up with the sciences, and that the absurd prejudices of superstition will have ceased to corrupt and degrade the moral code by its harsh doctrines instead of purifying and elevating it, we can assume that by then men will know that, if they have a duty towards those not yet born, that duty is not to give them existence but to give them happiness; ... (and not) foolishly to encumber the world with useless and wretched beings (found in Appleman, 1976, 9).

- ⁹The shift in mood manifested by the <u>Essay</u> was shared by other thinkers of the time (Ambirajan, 1959, 39; Wilber, 1977, 4f), and perhaps reflected the by-now dramatic increase in the urban poor mentioned above.
- ¹⁰This quotation appears directly after Malthus quotes Godwin describing the beauties of an egalitarian society, and is deliberately phrased in mocking imitation of it.
- ¹¹This despite the "featherlike" and "superficial lightness" of human institutions.
- ¹²The best known proponent of this view of history is Herbert Spencer.
- ¹³We shall see that both of these forces--low demand for labor combined with its low reward--operate today in the peripheral countries of the worldeconomy. Here too, the surplus population grows larger every year (Amin, 1974).
- ¹⁴Actually, automation was not alone responsible. The industrial sector was itself too small to absorb the entirety of the flood of rural migrants expelled by the enclosures.
- ¹⁵Although these cheaper products <u>can</u> expand the market by becoming more accessible to people with low incomes, they were in fact not cheap enough to accommodate the ranks of the urban poor and unemployed. Instead, the lower prices acted to expand the overseas market, frequently at the expense of indigenous industries abroad.
- ¹⁶Thus, with respect to family size, Marx felt that workers were in a double bind: small families would increase automation while large ones risk starving. However, large ones increase the probability that some family members will find <u>some</u> kind of employment: a motive tipping the balance in favor of larger families. This situation seems to obtain today in the periphery: from the microeconomic perspective of the family, large families are rational; from the macroeconomic perspective of the periphery as a whole, large families may ultimately be dangerously irrational.

CHAPTER 2

MODERNIZATION THEORY AND THE POPULATION QUESTION

The 19th Century Marxist and Malthusian views on the relationship between population size and poverty were a derivative of their opposing views on the potential limits of social production, and the equity with which the fruits of that production were distributed. For Malthus, the volume of production would never be able to satisfy an infinite human need (Malthus, 1970, 93-97). Furthermore, he felt that the capitalism of his day was well suited to maximizing both production and distributive equity, for it justly rewarded the frugal and cursed the improvident.¹ Excessive fertility among the poor merely typified the profligate behavior that merited and reflected their social station.

For the Marxists, capitalist production was neither efficient nor fair. Under socialism, they asserted that production employing all would be able to match the consumption generated by humane wage levels. In the meantime, capitalism insured that poverty and relative overpopulation would persist, reflecting, respectively, low wages and automation (Marx, 1967,vol.1, 628-40).

Today the conflict between modernization and dependency theory on the role of population in the poverty of the Third World contains an implicit continuity with the 19th Century debate. Unlike the original Malthusians, both sides now believe in the promise of technology for improving production, and neither side accepts that the social mechanisms of distribution are as fair as they could or should be. But it will be argued in this chapter that a common

31

view among demographers writing within the modernization perspective is that rapid population growth:

(1) greatly taxes the limited production possible given the backward agricultural techniques practiced in the Third World;

(2) retards the growth of general production itself.

As we will see in the next chapter, dependency theorists oppose these views with the belief that even current production levels are adequate for eliminating Third World destitution, and that poverty originates instead from the social misapplication and maldistribution of available resources. Within the modernization paradigm, population has a far more salient causal role than it plays within the dependency perspective, meriting for it proportionately more space here than will be given to population growth in the next chapter.

I. THE MODERNIZATION PERSPECTIVE

For modernization theorists, modernization is an evolutionary process encompassing the totality of social interactions, and affecting each of a given society's economic, social-psychological, and political aspects. It is also often visualized as a teleological process: the underdeveloped countries of the Third World will, it is hoped, come to increasingly have the economic structures and political institutions characterizing those found already in the developed and industrialized countries of the West (e.g.--Goldscheider, 1975, 85). Contrasting with the models of modernity typified by Western Europe, the United States, and Japan is the starting point of the modernization process: traditional society. Traditional societies are usually described as agrarian, low energy/capita, village-centered, and based on kinship relations. Politically, they are characterized as authoritarian aristocracies legitimatized by doctrinaire religious traditions (Goldscheider, 1971, 93–95; Eisenstadt, 1964, 1970b; Hoselitz, 1972; Rostow, 1963).

The progression from tradition to modernity has been separately analyzed from political, economic, and cultural/psychological vantage points, but a common theme has always been increasing differentiation and complexity² (Chodak, 1973; Eisenstadt, 1964, 577-80, 1970a, 1970b; Goldscheider, 1971, 80-100; Rostow, 1963, ch.1). As summarized by Eisenstadt:

The most common core of modernization is growing social differentiation unparalleled in the history of human societies. This process of differentiation, and of the concomitant "social mobilization" . . . creates societies in which the possibility of continuous changes is imminent and which face, therefore, certain basic problems (Eisenstadt, 1970a).

The modernization process is thought to have begun first in Europe as a result of internal developments there, allowing European societies a head-start (Rostow, 1963, 4-7). But for the Third World, the process is assumed to have been initiated by contact with (or conquest by) Europeans (Chodak, 1973, 257-59; Rostow, 1963, 7). Traditional society was therefore an original state. Although modernization is thought to have been sparked by outside forces, and is today felt to be assisted and accelerated by Western economic assistance and the cultural diffusion of Western ideologies and life-styles, it is hoped that the modernization process has (or will) become internalized and self-reproducing (Eisenstadt, 1964, 1970a, 1970b; Lewis, 1955; Rostow, 1963). This is especially true of the economic aspects of modernization, where the success of future economic growth depends upon the productive re-investment of endogenously accumulated surpluses (Lewis, 1955, 328-29, 335-37).

Overall, the expectation and hope of modernization theorists is that the development of the Third World will parallel and emulate that of Western Europe, Japan, and the United States. This expectation has led to a corollary theme evident within the literature, that Third World development is a recapitulation of European development (e.g.--Chodak, 1973, 258; Goldscheider, 1971, 85). Prescriptions for development thus tend to borrow extensively from the lessons of the European experience (Goldscheider, 1971, 98). What follows is a brief summary of the most salient of these expectations and recommendations.

II. THE MODERNIZATION PROCESS

A. ECONOMIC MODERNIZATION

Sustained economic growth is a prerequisite to successful modernization, and the social/political tensions arising from unrelieved poverty are perceived as barriers to the political-economic development required by the paradigm (Eisenstadt, 1964, 1970b). The usual explanation for the persistence of Third World poverty has been the reliance among those societies on traditional, laborintensive agricultural techniques (Lewis, 1955, 328-35; Rostow, 1963, 4). As the population has grown, these techniques have become increasingly ineffective to meet the growing demand. Suggestions for improving overall economic performance have therefore emphasized raising agricultural productivity by updating technology and shifting the burden of production away from the peasant.

Concomitant with the improvement of agricultural productivity has been the recommendation that traditional economies become diversified through industrialization and foreign trade (Chodak, 1973, 210–12; Lewis, 1955, 330–50; Rostow, 1963). Lewis (1955) and Rostow (1963) agree that an appropriate growth target for sustained industrialization is a rate of capital investment of 5 to 10 percent of the net national product. To achieve this goal, they recommend the establishment of industries that will extract, process, and sell on the world market locally available resources. It is hoped that the success of these industries will stimulate a mutually reinforcing cycle: as the growth of these "leading" sectors fosters the development of supportive tributary industries, industrial urban employment will grow. Under ideal conditions, the growth of urban employment opportunities will eventually match the numbers of urban migrants released from the agricultural sector by rising rural productivity. The resulting expansion of the urban labor force creates a growing domestic consumer market, allowing the continued expansion of industrial production (Lewis, 1955, 334-37; Rostow, 1963, 8, 52-57). Beyond some critical point, the entire cycle is expected to become self-financing.

The starting point for the process of industrial diversification and growth is traditional agrarian society. The reliance upon traditional, labor-intensive agricultural techniques is thus the first hurdle to be overcome in initiating industrial growth. Because agriculture accounts for the major share of economic output in the Third World, Rostow observes that ". . . the rate of increase in output in agriculture may set the limit within which the transition to modernization proceeds" (Rostow, 1963, 23). To overcome this brake on development, and to finance the purchase of machinery for both industry and agriculture, Lewis and Rostow argue for the international sale of available natural resources to earn foreign exchange.³ If these earnings are inadequate, capital imports from abroad (direct investment and loans) may help in launching the industrialization proceess.

But regardless of how it is acquired, successful economic growth requires that capital be <u>invested</u> (not hoarded or wasted); banks providing cheap loans to local investors must be available; and at least one sector must be able to grow fast enough to finance the growth of other sectors (Rostow, 1963, 49). Finally, it is decisively important that the capital being accumulated be reinvested within the economy, and is not allowed to be exported abroad⁴ (Lewis, 1955, 351; Rostow, 1963, 39).

B. PSYCHOLOGICAL/CULTURAL MODERNIZATION

The structural economic changes just outlined have been pictured as accompanied---and to some extent caused---by related attitudinal changes. With industrialization and urbanization comes a change in social settings away from villages and their traditional, kinship-based social patterns. At the same time, individuals most adapted to the modern urban setting will become the most likely to succeed and join the emerging elite (Weiner, 1981).

The precise features of the psychological profile of the "modern" individual vary somewhat between authors, but some of the common features are:

I. A belief in the lawfulness of nature, and its amenability to scientific investigation;

2. Concomitant decline in the acceptance of traditional religious authority;

3. An allegiance to the national community as a whole, fostered by a growing mass media;

4. The growth of a self-centered individualism, coupled with the desire for upward social mobility;

5. An openness toward and active pursuit of new ideas and techniques replacing the passive receipt of traditional answers (Anderson, 1975; Chodak, 1973, 150; Goldscheider, 1971, 95; Horowitz, 1972; Weiner, 1981).

With structural economic change, individuals tied to the old elites find their traditional high status challenged by the emerging elites connected with the new growth industries. The status insecurity and disequilibrium created during this shift will, it is argued, encourage forward-looking individuals to try and join the new elites by actively seeking to master and improve upon the new technologies and life-styles (Chodak, 1973, 159-80). By their aggressive pursuit of upward mobility, these innovators unwittingly become "change-agents," further accelerating the transformations implied by modernization. The appearance and spread of individuals bearing these marks of modernity constitutes a major psychological break with the traditional personality of the past ". . . which avoids anxiety brought about by independent, critical, and innovative thinking" (Chodak, 1973, 159-60; see also Eisenstadt, 1964, 587).

C. POLITICAL MODERNIZATION

One important political shift accompanying modernization is from local to national political participation (Weiner, 1981). Loyalty to the political life of the village is expected to be gradually replaced by an interest in the policy decisions made by the central administration of the nation-state as a whole. Goldscheider's characterization is typical of the literature:

The break-up of family kinship dominance brings about an emphasis toward individualism; the expansion of village tribal control results in the replacement of localism with nationalism. Hence, the transformation from the social-economic isolation of the village to the social isolation of modern man. As the familial, economic, political, and cultural universe begins to crumble, the urban man stands alone and his survival depends on the new emerging social system (1971, 95).

In order to minimize political strife (or total dissolution), this process of social fragmentation must be complemented by national integration. The individual's

reliance upon and felt sense of integration with the state is the central problem of political modernization (Chodak, 1973, 233-34; Eisenstadt, 1964, 1970a, 1970b). Mechanisms establishing political lines of communication between individuals and regions within the developing nation facilitate national integration. Examples of such mechanisms include mass media (Weiner, 1981), and formal institutions (parliaments, bureaucracies, political parties)⁵ (Eisenstadt, 1970a). The ultimate goal is the democratization of political life: enhancing the chances for stability during the insecure transition to modernity (Eisenstadt, 1964, 577; 1970a).

* * *

The economic, attitudinal, and political aspects of modernization are interdependent and complementary. Hence disequilibrium between the various components of the process can distort, retard, or altogether block the transition to modernity (Eisenstadt, 1970b).

The achievement and maintenance of sustained economic growth, and the diffusion of its benefits throughout the general population, is the backbone and prerequisite of successful modernization. Failure to attain it, it is argued, renders the remainder of the process particularly vulnerable to "breakdown" (Eisenstadt, 1970b; Weiner, 1981). That most of the nations constituting today's Third World seem unable to achieve sustained economic growth has encouraged modernization theorists to look for plausible explanations. One central--even dominant--mechanism that they have turned to is the "explosively" rapid rates of population growth common throughout Asia, Africa, and Latin America. We shall now turn to how they perceive this phenomenon to interrupt and block the transition to industrial society.

III. MODERNIZATION THEORY AND THE POPULATION QUESTION

A. THEORY OF THE DEMOGRAPHIC TRANSITION

The first articulation of the theory of the demographic transition emerged in the 1930s, 20 years before the widespread emergence of modernization theory (Humphrey and Buttel, 1976; Teitelbaum, 1975). Although it will be referred to here as a theory (following the convention of the literature), Coale (1973) has observed that it is not really a theory at all: it is instead a set of loose, empirical observations of the demographic history of Europe strung together by speculative hypotheses about their underlying mechanisms. Coale concludes that, formally, transition "theory" cannot be legitimately used as a predictive But despite his reservations, it is still widely used for generating model. predictions because it is drawn from European history. Demographers interested in the Third World and informed by the modernization paradigm, accept the latter's assumption that the social evolution of the developing countries will parallel that of the West. Hence they assume that the mechanisms that led to the demographic history of Europe will apply with equal (if delayed) force to the rest of the world as well (Coale, 1973, 1974; Freedman and Berelson, 1974; Teitelbaum, 1975).

The essential observation of the theory is that human populations seem to go through three "phases" in their behavior (Coale and Hoover, 1958, 9-12; Coale, 1973; Freedman and Berelson, 1974; Goldscheider, 1971; Teitelbaum, 1975). Phase I corresponds to traditional society: self-sufficient agrarian communities operating at a low level of production and technique. Because their food supply is subject to unpredictable fluctuation, and the knowledge of medicine is limited, death rates are high and vulnerable to chance fluctuations. Of necessity, surviving generations must develop traditions encouraging compensatorily high fertility. Phase I systems are thus at equilibrium, albeit at a high rate of turnover.

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The introduction of improvements in medical knowledge and appropriate changes in sanitation and hygiene that accompany economic development bring death rates down, and inaugurate Phase II. This second phase is marked by rapid population growth, because the steady decline in death rates is not generally matched by a correspondingly rapid drop in fertility. The lack of equilibrium in Phase II is thought to arise from the different ways in which fertility and mortality are regulated. While mortality reduction is a universally desired agai awaiting only the discovery of effective medical technique, fertility regulation is for more complex. First, the equilibrium of Phase I required high fertility for survival, thereby fostering among successful populations "pro-natal" values. Precisely because of the success of these values, they tend to outlive one of their original functions (matching fertility with mortality), causing a normative "lag" with mortality conditions.⁶ Second, children in agricultural societies are usually productive members of the family, and a source of security in old age. If economic development neither bars them from that function nor makes them unnecessary, then they will remain desired (or even essential) despite reductions in mortality.⁷ In essence, mortality declines because of technique, whereas fertility reflects the role of children in the social structure, making its behavior far less predictable and automatic (Goldscheider, 1971, 135–38).

However, classic transition theory argues that Phase II is also transient, because the forces of structural change assumed to accompany economic development gradually begin to redefine the role of children away from production. As society shifts from an agricultural to industrial base, children (it is presumed) will be excluded from the new urban factories, and redirected into increasingly compulsory education. As a consequence, fertility eventually rejoins its previous equilibrium with mortality, thereby beginning Phase III.

Contemporary societies in Phase III are all of the developed metropolitan states. Because of their (relatively) high wages and government-administered social security programs, children are no longer an economic necessity for either a couple's present or future welfare. Furthermore, urbanization and the necessity of easy geographic mobility have shattered the extended family, removing kinship obligations for which children are useful still further from matters of daily concern (I.B.R.D., 1974, 51; Lewis, 1955, 330-40). Finally education, because it is essential to social status and power, has become a necessity for children--consuming the time that they might otherwise be spending on a job⁸ (I.B.R.D., 1974, 51, Schultz, 1969).

Throughout the entire process, change in economic structure is the decisive force. This is well illustrated by the following summary from Coale and Hoover's (1958) seminal work:

The theory of the demographic transition asserts that the high birth rates, as well as the death rates, characteristic of an agrarian low-income society are affected by economic development. The changing structure of production, with a declining importance of the family as a production unit, . . . with the development of economic roles for women outside of the home, tends to increase the possibility of economic mobility that can better be achieved with small families, and tends to decrease the economic advantages of a large family. (p. 11)

Initially, like modernization theory itself, transition theory was drawn from historical observations of Europe (Humphrey and Buttel, 1976; Teitelbaum, 1975). However, since its wedding with the latter, it has been frequently used to make predictions about future demographic patterns in the Third World (Coale and Hoover, 1958; Goldscheider, 1971; I.B.R.D., 1974; Teitelbaum, 1975). In particular, demographers have tended to adopt measures of urbanization, industrialization, GNP/capita, and other similar indicators over the years as a kind of empirical and symbolic shorthand for the shifting family roles that are assumed to accompany modernization. Insofar as modernization theory predicts that the economic shift from agriculture to industry is paralleled by a demographic shift from the extended rural family to the urban nuclear form, these empirical stand-in measures remained unquestioned. Recent research, however, has begun to challenge these easy linkages. This has happened for two reasons. First, closer re-investigation of European history has revealed that the early generalizations of transition theory are not borne out (Coale, 1973; Goldscheider, 1971; Teitelbaum, 1975). Second, the persistence of high fertility in the Third World despite some industrialization and very rapid urbanization has led to questions about the applicability of transition theory to the developing countries at all (Coale and Hoover, 1958, 16-17; Goldscheider, 1971, 15-32; Teitelbaum, 1975).

Part of the difficulty lies with the theoretical ambiguity of transition theory itself. As Coale has remarked in this context:

The history of the western population during the past 200 years suggests that vital rates normally fall as a concomitant of modernization, but it provides no checklist of advances in literacy, mortality reduction and urbanization that would enable one to estimate when fertility will fall (Coale, 1974, 25).

The consistent inability of demographers to find the mechanical connections between indicators of social structure and demographic change suggested by transition theory reveals the truth of Coale's observation reported above: that the "theory" is not grounded in a solid understanding of the actual historical forces that created the reported demographic changes. These problems have led Goldscheider (1971) to criticize his colleagues in a passage worth quoting in full:

In large part, demographic research has not specified the particular processes of modernization that are interrelated with population changes and has not identified the mechanisms that connect population and social processes. The concentrated effort to develop "a theory of demographic transition" has tended to ignore or to consider inconsequential variations and fluctuations in population changes before, after, and during the transition, and has rarely treated the question of continuity in population patterns. Only during the last two decades or so have demographers considered the significance of historical timing of demographic changes and examined the role of "external" influences on population changes around the world. The extensive search for universal empirical aeneralizations about the demographic transition as an end in itself. rather than as a preliminary to comparative explanation, has resulted in an exaggerated preoccupation with the empirical universality or non-universality of one type of Western demographic change sequence. .. (T)he nature of the analytic questions that have been raised has provided little in the way of systematic specification and clarification of factors associated with demographic variation and change (Goldscheider, 1971, 100-1).

With regard to Europe, closer examination has revealed that the declines in fertility usually predicted did indeed occur, but that areas with similar economic characteristics began fertility declines at very different times and widely different rates. Consequently, traditional measures of urbanization, literacy, etc., are of little help in "predicting" historical trends of European demography, except at highly aggregated units of analysis. For example, records from France and Hungary indicate rapidly dropping birth rates beginning in the late 18th Century while those areas were still agricultural (and were thus, in a sense, "premature" in their behavior--Coale, 1973; Teitelbaum, 1975; Goldscheider, 1971, 156-61). Meanwhile, English fertility persisted at high levels until the mid-19th Century--well after industrialization had urbanized most of England's population. Further, Coale's group has discovered that once fertility began to decline, the change in behavior spread along cultural and linguistic lines rather than economic ones (Coale, 1973).

Nevertheless, Goldscheider has convincingly shown that even for the aberrant cases of France and England, economic forces were still primarily responsible. But the chain of causality was much more complex than was implied by the earlier generalizations from aggregate data. In France, excessive land fragmentation curbed the frequency of large families, while in urbanized England widespread destitution and child labor continued to make children essential for family survival (Goldscheider, 1971, 151-61). Hence, as these European results suggest, it is not that fertility behavior is immune to social-structural change, it is rather that structural change affects fertility only to the extent that it changes the role of and prospects for children within the economics of the family. In 18th Century France, the additional agricultural production made possible by children became offset by excessive fragmentation. Urbanization had nothing to do with it. It is not urbanization or literacy per se that affects fertility: their effectiveness as empirical "predictors" is limited to the degree that they indirectly reflect other forces changing the role of children in the social production process.

Yet it is the inconsistency between transition theory and the demographic behavior of the Third World, not Europe, that has recently been of the most concern. Although death-rates have been dropping steadily since the second World War, fertility has only started down recently. Even then some have argued that it was done so only after persistent government pressure, and not as an "automatic" reflection of "structural modernization" (Mauldin and Berelson, 1978). It has long been recognized that the rather sudden post-war drop in mortality (around 7/1000/decade) was not a by-product of endogenous economic development. Instead it has been due to the importation and application of antibiotics, insecticides, and other public health techniques (Coale and Hoover, 1958, 14–15). That fact in itself poses no theoretical problems. The dilemma for demographers is instead posed by the persistence of high fertility. One must either reject transition theory and argue that the gradual modernization of the Third World is somehow leaving fertility (relatively) unaffected (via the continued stength of "pro-natal" norms, for example), or else retain the logic of transition theory (i.e.--that fertility reflects economic forces) and instead assert that modernization is not occurring rapidly enough to affect desired family size.

In fact, most have chosen the latter position. Rates of economic growth have been very slow, so slow that the gap between the world's wealthy and poor countries is actually getting larger each year (Brown, 1975). Also, attempts to explain fertility behavior strictly by reference to cultural or religious factors have not been very successful (e.g.—Cutright, et al., 1976). Consequently, the persistence of high fertility has usually been explained as being a result of the continued economic utility of large families: itself a reflection of the continued poverty of most people living in the Third World. Now it is commonly argued that some combination of poverty, illiteracy, and simple population growth momentum (because of a youthful age-structure) override the forces of urbanization²nd industrialization, and that only major structural change toward greater modernization can permanently alleviate the situation. How such change can occur is, however, greatly debated (Coale and Hoover, 1958; Goldscheider, 1971, 161-72; I.B.R.D., 1974; Teitelbaum, 1975).

B. POPULATION GROWTH AND ECONOMIC DEVELOPMENT

We therefore return again to the central problem of continued poverty. To understand the approach to it taken by modernization theorists, it will be useful to briefly review their diagnoses for economic development. It will be recalled that the process of economic modernization ideally starts with the international sale of natural resources. These are intended to allow the purchase of tools to improve agricultural productivity, "releasing" labor to the cities and giving the rural sector the ability to feed the growing urban population. With a swelling urban labor force keeping its own wages low, industries selling products to both the extractive and agricultural sectors can gain a foothold. The establishment of such "tributary" industries, it is hoped, will create a chain reaction of rising employment, effective internal market demand, and more new industries to meet it.

The modernization process hinges upon these crucial links: (1) the existence of saleable natural resources; (2) an effective demand (whether domestic or international) for the realization of profits; and (3) the generation from those profits of a high rate of savings and investment for future economic expansion. The manifest failure of this process to "take-off" permanently anywhere in the Third World, let alone become a general pattern, has forced both a re-examination of the basic assumptions behind these expectations (the topic of the next chapter) and a closer look at the above three linkages.

As some of the poorest nations have abundant resources (e.g.--Bolivia, India, Zaire), it is clear that resource shortages are not necessarily the general cause of the problem. Furthermore, Lewis's (1955) theory suggests that sale of these resources should, via rising employment, indirectly generate an effective

46

demand at home. Instead, attention has tended to focus barriers to sustaining either a high rate of saving or a high rate of investment (Coale and Hover, 1958; I.B.R.D., 1974; U.S. A.I.D., 1971). The effect of population growth on the rate of savings, investment, and productivity has played a particularly important role: it would now probably be safe to say that all important analyses of world poverty today within the modernization framework rely heavily upon the role of population growth. So heavily, in fact, that its removal from these analyses would cast serious doubt upon the validity of the remaining theoretical structure (e.g.—I.B.R.D., 1974, 55). In the rest of this section we shall examine some of these connections.

Today, the concern over population focuses almost exclusively on its rate of growth. This has not always been true. In the early part of this century, debates centered on defining an optimum population size, especially in regard to the efficiency of agricultural production (and "diminishing returns" to land) (Beveridge, 1923; Dalton, 1928; I.B.R.D., 1974, 24-25; Keynes, 1923; Perelman, 1975). Later, this concern was echoed in the development economics of Lewis (1955, 320-30). But by then the question of size had been largely subordinated to that of growth. The reason for this shift in emphasis lies in the unrealistic assumptions of optimum size theory: in order to specify an "ideal" size that would exactly match the theoretical requirements of a given country's industrial and agricultural production, it was necessary to assume static productivity, hence static technology. For as soon as technological change occurred allowing increased productivity, then the labor requirements (and optimum population size), would perforce change too. As Coale and Hoover observed, "... judgments that a population has too large a size ... may prove to be obsolete even if originally correct"⁹ (1958, 19).

The rate of population growth is thought to affect three aspects of the economic structure: labor productivity, the rate of savings, and the relative share of agriculture in the Gross Domestic Product. (The Gross Domestic Product is the Gross National Product net of the income of nationals living abroad.) These effects in turn create distortions in the market and other surface phenomena.

I. Productivity

By definition, for capitalists, labor is the most important cost of production in "labor-intensive" economies (which is how most "development economists" would classify the countries of the Third World).¹⁰ The faster accumulated capital can be converted into production machinery, the faster labor costs can be reduced, and the rate of further accumulation accelerated. Contemporary demography has tended to measure the average national rate of productivity as the total amount of a nation's capital matched against all of its people of working age. Hence they measure labor productivity not in terms of capital/worker in actual firms, but instead use the more abstract ratio "total national capital"/"total productive population," where productive population equals the entire population falling into what demographers define as the working age (usually 20 to 50). If one accepts this ratio, then clearly national productivity becomes a race between the respective rates of capital accumulation and population growth.

The poverty of the Third World has been conceived of as being at least partially due to a shortage of capital and a failure of accumulation. Given the above assumptions, the logical conclusions are obvious: When the supply of capital is inelastic, a higher rate of population growth forces the diversion of investment to duplicate existing facilities, preventing an increase in the capital available for each worker (Coale and Hoover, 1958, 20).

Nearly 20 years later, this same argument also finds its way into the analysis of the World Bank:

The more rapidly a labor force grows, the more investment will be required to maintain the average capital stock per worker, allowing less of an increase in capital and therefore dampening the growth of productivity. This phenomenon is sometimes described as capital "widening" rather than "deepening" (I.B.R.D., 1974, 28-29).

Since this view usually also holds that capital can only be incremented through domestic production (foreign loans requiring ultimate repayment), then this "drag" on productivity is considered a serious matter. By keeping labor costs up, it suppresses accumulation and further growth (Coale and Hoover, 1958, 19-24; I.B.R.D., 1974, 28; U.S.A.I.D., 1971, 2).

2. The Dependency Ratio and the Rate of Savings

In the case of productivity, population growth is seen as creating laborers faster than capital. The faster the <u>rate</u> of population growth, the more likely the average productivity ratio is to drop. The rate of population growth also has a second effect: it raises the "dependency ratio" (the proportion of the population "dependent" upon the economically productive workforce¹²). As the dependency ratio rises, more of the population consumes without adding to production. If one assumes (as do Coale and Hoover (1958)) that most production is for domestic consumption, then this rising ratio becomes an index of despair for world poverty.

Investment in expanded production depends upon not only past accumulation but also past savings. The main concern of economic demographers is that as the dependency ratio rises, increasing amounts of production must be diverted to immediate consumption at the expanse of investment for future production. At the level of the household, for example, more children should require the purchase of food and clothing at the expense of either consumer durables (diminishing the internal market) or of capital goods for small-scale production (depressing the rate of capital accumulation) (Coale and Hoover, 1958, 24-26; U.S.A.I.D., 1971, 2). For the same reasons, government spending must (it is assumed) be diverted into social services (e.g.--education) and thereby constrict state-controlled capital available for loans to business¹³ (Coale and Hoover, 1958, 24-26, 285; I.B.R.D., 1974, 26, 30-31; U.S.A.I.D., 1971, 2).

3. Other Accumulation, Employment, and Market Effects

Because a rising dependency ratio is assumed to increase immediate consumption, it then becomes a simple corollary to expect the demand for food to rise. Hence investment should shift away from industrial production and revert to agriculture. According to the modernization model, this is a retrograde movement, one whose long-term effects depress the rate of industrial production and the shift to a "modern" economy (U.S.A.I.D., 1971, 2). All of these drags on efficient accumulation also retard the creation of jobs and hence tend to raise unemployment (Coale and Hoover, 1958, 285; I.B.R.D., 1974, 33-35).

The low wages (thought to arise from high unemployment) and lowered rates of accumulation combine to reduce incentives for raising productivity while in turn creating incentives to maintain wages at low levels. So while the <u>potential</u> urban market rises with the population, actual effective demand remains depressed. The inevitable outcome is inequality (I.B.R.D., 1974, 33-37;

U.S. A.I.D., 1971, 2-3). Thus the distortions of production manifest themselves in a distorted market: cheap agricultural products for immediate local consumption, exotic raw materials and expensive manufactures for sale abroad. Again, Coale and Hoover: "With high fertility, a smaller total product must be divided among many more consumers than would be the case under low fertility" (p. 285).

IV. PERSISTENT POVERTY, MODERNIZATION THEORY, AND POPULATION GROWTH

The mechanisms just outlined by which population growth slows economic growth are well summarized in the words of their original ideological architects, Coale and Hoover:

If a country now has low incomes, a high birth rate ... and is in the process of reorganizing its economy to a more productive form, it will achieve a higher total product during the next 20 or 30 years if it reduces its fertility. This greater product is in addition to the per capita gains resulting from a division of the product among a smaller number of consumers (emphasis is original, 1958, 319-20).

The popular acceptance of these views today is manifested both by their promulgation in official United States government publications¹⁴ (U.S. State Department, 1978a, 1978b), and by the financial support of mass contraception and sterilization programs by the Ford and Rockefeller Foundations (Mass, 1976, 58–63).

These demographic mechanisms are viewed as retarding economic growth and sustaining income inequality, and thus have provided modernization theorists with an important--even primary--explanation for the apparent blockage of the modernization process throughout the Third World (Goldscheider, 1971; I.B.R.D., 1974). It will be recalled that successful economic growth and the dissemination of its benefits is a prerequisite to the harmonious integration of the modernization process.

These arguments have now brought us full circle. Starting with the observation that the conditions of poverty encourage high rates of fertility, demographers writing within the modernization perspective have reasoned that population growth sustains poverty (by retarding production). The World Bank observes, for example, that:

... the mutually reinforcing problems of rapid population growth, slow economic growth, and inequality of income distribution might prevent a significant fall in fertility from ever occurring without deliberate population policies (I.B.R.D., 1974, 55).

With this reasoning, poverty becomes a "vicious circle" brought down upon the poor by the collective behavior of the poor themselves. The neo-Malthusian character of this viewpoint is clear. As did Malthus, demographers informed by the modernization perspective have argued that the existence of poverty is ultimately caused by the behavior of the poor (although, unlike Malthus, they attribute this behavior to social-structural instead of psychological forces). Secondly, they assume that most production within the Third World is destined for local consumption, and is crippled by backward techniques. Once again like Malthus, they calculate current production to be limited and stressed by the pressing demands of too many consumers. The failure of the "developing" countries to develop is thereby ascribed to internal, self-replicating forces.

NOTES TO CHAPTER TWO

- In his role as a consumer, a frugal individual would consume less than a wasteful one, thereby insuring that the volume of goods would be spread out over more individuals. In his role as a producer, that same type of personality was simultaneously assumed to produce more, hence maximizing the overall volume of production. To the extent that capitalism rewarded and encouraged frugality, Malthus believed that it necessarily raised the volume of production and fairly distributed its benefits among the most deserving members of society (Malthus, 1970, 93-97).
- ²The importance of this common theme can perhaps be attributed, at least in part, to the influence of Durkheim. His vision of social evolution as a progression of complexity from mechanical to organic solidarity seems to have provided one of the intellectual roots of the modernization perspective (Durkheim, 1964, 70–133; Giddons, 1971, 70–79) (see, for example, Eisenstadt's use of these concepts--1970b, 438–39).
- ³The model for agricultural production that informs the recommendations of Lewis and Rostow is that exemplified by the United States and Western Europe. While the amount of the labor force employed in agricultural production within Africa, Asia, and Latin America is typically as high as 50%, in the industrialized countries it is usually around 10% (Taylor and Hudson, 1972, 332-35). This large difference in worker productivity is solely due to the direct and indirect use of fossil fuels (i.e.--machinery and fertilizer). Insofar as fossil fuels are largely imported into the agricultural ecosystems of the Northern Hemisphere, agricultural productivity there is mainly a reflection of the wealth required to control the flow of oil--not its cause. The recent upward leaps in the price of oil have had devastating consequences for the ability of Third World countries to finance improvements in agricultural productivity, limiting the diffusion of these improvements to the wealthiest "agribusiness" firms (Caldwell, 1977, ch.1; Commoner, 1971, ch.5, 1977, ch.3; Mass, 1976, 119-22; Mellor, 1976; Odum, 1971, ch.4; Perelman, 1977, 172-75; Saini, 1976).
- ⁴Lewis stresses this point especially strongly, advocating protectionist measures for Third World industry (Lewis, 1955, 351). Ironically, one of the claims of dependency theory is that these conditions of domestic re-investment of endogenously generated capital neither have nor could be obtained in the Third World because of the structure of the world economy (e.g.--Baran, 1957, 174; Dos Santos, 1970).

⁵Eisenstadt characterizes these desired lines of political communication as . . . legislative frameworks, common symbols of politicalnational identification, organs of political struggle, and administrative machinery . . . (1970a).

Chodak refers to them collectively as "growing systemness" (1973, 234).

- ⁶A classic---and over-researched---example of the disembodied persistence of these pro-natal values is the high fertility of Catholics in the United States and Latin America. For U.S. Catholics, it was found that their fertility remained higher than both Jews and Protestants even after social structural factors were controlled for. (For the U.S. findings, see Freedman, et al., 1961; for Latin America, see Cutright, et al., 1976.)
- ⁷The label "infant mortality" incorrectly implies that all children who die will do so in their first year (when "infants"). In fact, the period of highest vulnerability stretches into the fifth year. So there is no way for parents to know if a given child will survive without waiting several years. If the parents know from the experience of the community at large that some unknown number of their children can be expected to die, then, rather than wait 6 years between births, it is reasonable to continue to produce children until the desired number survives beyond their sixth year. This is all the more true as a commonly desired number of children is 4-6 (Stycos, 1971). Spacing that number by 6 years would take 24–36 years! Although such a strategy is rational (e.g.-producing 7 in order to be left with 4) on an individual family level, it still remains possible that all might survive. Consequently, medical/nutritionally induced reductions in infant mortality can be expected to have an immediate effect on fertility, because they give parents the predictive confidence to have only as many children as they wish--without padding the numbers to be on the safe side (see Schultz (1969)).
- ⁸The increasing appreciation of the economic aspects of fertility behavior has spawned an entire literature devoted to examining childbearing strictly within the frame of influence of neo-classical economics. Thus children are perceived in terms of "investment yield" and "opportunity costs." For some examples of this literature, see Enke, 1966, 1973; Leibenstein, 1969, 1974; Namboodiri, 1972; Nerlove, 1974; Schultz, 1969, 1971.
- ⁹Note the phrase "... too large ..." in Coale and Hoover's sentence. With the exception of Beveridge (1923), who argued that population was largely irrelevant to economic changes, and Clark (1953) who anachronistically pleaded for the virtues of an expanded labor supply with larger population size, all writers on optimum size tended to assume that an imbalance between labor supply and economic resources was more likely to result from overpopulation than anything else.
- ¹⁰As will be seen in the next chapter, this claim--that accumulation in the periphery is accomplished with a lower organic composition of capital (hence "labor intensive")--is challenged by some dependency theorists, who argue that, in fact, the productive installations that are most important within the periphery are every bit as automated as those in the metropoles (Amin, 1974, 1976; Emmanuel, 1972).

¹¹Clearly, what is overlooked by such arguments is that while "average" rates of productivity are indeed the mathematical ratio of "total national capital"/"total employed workforce," industrial production is not homogeneous in its level of automation, so national averages here are quite misleading. For example, it is not untypical for a Third World economy to have 10% of its workers employed in industries whose productivity matches that of the metropoles, while another 50% is engaged in various forms of agriculture (itself of differing productivities, depending on whether it is foreign-owned "agribusiness" or independent small-holders producing for local consumption), while of the remaining 40%, those not employed in government may vacillate between various forms of unstable employment, sub-employment, or unemployment (e.g.--street vendors, shopkeepers, beggars, prostitutes, etc.).

Secondly, the hypothetical average used by demographers is not even "total national capital" over "total employed workforce." Instead, the denominator is falsely linked to the population size: it is "total population of employable age" (a very different notion). Where the former ratio was misleading, the latter is simply wrong altogether. The numbers of people actually employed (and who thereby participate in production) has nothing directly to do with the numbers potentially employable. (For information on and explanations of labor force characteristics, see Amin, 1974, 361-394; Arrighi, 1970; Harris, 1975, 22-30; Leitner, 1976; Leys, 1975, ch.6).

¹²The "dependency ratio" has no connection with "dependency theory."

¹³This line of reasoning suffers from some of the same flaws that characterized the agument on productivity: it shows a fondness for a clean theoretical structure uncomplemented by an equal affection for facts. Household savings do not constitute the backbone of industrial investment in any capitalist country today--and it is doubtful that they ever have. Even the World Bank admits that "Governments and corporations are frequently more important savers." (I.B.R.D., 1974, 28).

With regard to the former, many demographers have followed Coale and Hoover's argument that fast-growing populations would force their governments to divert increasing amounts of revenue away from saving and into "welfare" programs for immediate consumption, thus retarding economic growth. However, Billsborrow (1973) reports that governments in the periphery typically account for only around a third of total savings. More to the point, Sinha (1973) has found that in India (Coale and Hoover's "model" country), government spending on both health and education combined only accounts for 4% of total government spending.

In the real world, savings are broken down as follows: 30% corporate (often foreign multinationals); 30% government; and 40% household (being the wealthiest 10%, and thus immune to population "pressures") (Billsborrow, 1973). For further elaboration of these and other criticisms, see Billsborrow (1973), Meilink (1974), and Sinha (1973).

¹⁴An example of this official endorsement can be found in the words of one State Department official:

excessive population growth, perhaps more than any other single phenomenon on the world scene, threatens denial to our children and their children and endless generations to come of those very goals which mankind seeks: life, liberty, and the pursuit of happiness (U.S. State Department, 1978a, 4).

CHAPTER 3

DEPENDENCY THEORY, POVERTY, AND THE POPULATION QUESTION

INTRODUCTION

The evolution of Northern Europe, the United States, and more recently, Japan, into global centers of wealth and power make their histories the "success stories" of the contemporary world. So it is understandable that students of development would draw from the experience of these areas in their prescriptions for and models of development for today's Third World. But the clear and persistent failure of the contemporary Third World to follow the Western model successfully poses an anomaly that potentially challenges the fitness of that model.

Within the modernization perspective, we have seen that one of the common responses to this challenge has been the emphasis on population growth as a barrier to development. From this viewpoint, the Western developmental model is still seen as fundamentally appropriate; its effectiveness is instead perceived as diminished or obliterated by the demographic conditions unique to the Third World today (Coale and Hoover, 1958; Goldscheider, 1971; I.B.R.D., 1974).

The second prevalent response to the persistence of poverty has taken the form of a re-conceptualization of the problem labeled dependency theory. Dependency theory conceives of poverty and underdevelopment as arising from mechanisms that differ widely from the demographic causes discussed in the last chapter. Here in this chapter most of the space will be devoted to analyzing

57

these non-demographic mechanisms as they are understood from a dependency perspective. Only after these have been detailed will it be appropriate to examine the views on population growth that can be found in the dependency literature.

For dependency theorists, underdevelopment is not an "original state" from which nations evolve into industrially mature economies (Johnson in Cockroft, et al., 1972, 72). Rather, underdevelopment is understood as being both an outcome of history and an ongoing contemporary process. The word "dependency" reveals the central idea underlying the perspective: that the evolution of the economic, social, and political conditions of the underdeveloped countries of the Third World is <u>dependent</u> upon the needs of other more powerful nations and economies. This basic idea is most clearly elaborated by Dos Santos (1970):

By dependence we mean a situation in which the economy of certain countries is conditioned by the development and expansion of another economy to which the former is subjected. The relation of interdependence between two or more economies, and between these and world trade, assumes the form of dependence when some countries (the dominant ones) can do this only as a reflection of that expansion, which can have either a positive or a negative effect on their immediate development.

A corollary to this definition of dependence is that the structure of dependent economies has been and continues to be qualitatively distinct from the structure of the wealthier industrial powers of Europe, U.S.A., and Japan (Amin, 1974, 1976; Frank, 1967, 1969, 1972, 1978; Mandel, 1975; Wallerstein, 1976, 1980). Accordingly, dependency theorists employ this distinction in their terminology: the industrial countries are typically referred to as metropolitan (Frank, 1967, 1969), central (Amin, 1974, 1976), or core (Wallerstein, 1976, 1976b, 1979, 1980) economies, while Third World countries are usually termed satellites (Frank), peripheral (Amin, Wallerstein), and dependent.¹ In Amin's

(1974, 16) analysis of the structural distinctions between metropolitan and peripheral economies, he notes that

An advanced economy forms a coherent whole, made up of sectors that carry out substantial exchanges between themselves, what may be called "interindustrial" or "intersectoral" exchanges ... An underdeveloped economy, however, is made up of sectors that carry out only marginal exchanges among themselves, their exchanges being made essentially with the outside world.

This quality of internal coherence, or "articulation" (Amin, 1974, 1976), is the central criterion used by dependency theorists to discriminate metropolitan from peripheral economies, replacing for them the criterion of the degree of industrialization employed by followers of the modernization paradigm (e.g.--De Janvry, 1977).²

The origin and development of both articulated and disarticulated economies, and their relations with each other, is seen as reflecting the historically changing imperatives of economic survival imposed by the capitalist world-economy (Bodenheimer, 1971, 36-37; Frank, 1978; Wallerstein, 1976, 1979, 1980). Starting with the mercantile era (c. 16th Century), intra-European competition for political/economic hegemony led to the successive destruction of the indigenous productive systems of Latin America, the Caribbean, Africa and Asia (Frank, 1978; Wallerstein, 1976, 1976b, 1980). Eventually, dependency theorists argue, their populations and resources were reorganized and mobilized by a series of European powers (and, later, the United States) to become economic appendages of those powers. So while the intentions of each of the dominant powers in this process were economic prosperity and strategic security, the effect on their colonies was to shape them into export platforms for raw materials and sources of cheap labor without an independent capacity for industrial growth or capital goods production (Amin, 1974, 1976; Mandel, 1968, 1975). The absence of a developed capital goods sector and the distortion toward exports are, therefore, two of the manifestations (and causes) of the disarticulated quality of peripheral economies (Amin, 1976, 200; Dos Santos, 1970). In our own day, the agency usually identified as perpetuating this legacy of economic extroversion³ is the multinational corporation, whose financial resources allow it to suppress local competition for capital-goods production within the periphery (Mandel, 1975, ch. 11; Palloix, 1977; Sivanandan, 1979; Vuskovic, 1980).

Low wages within the Third World have prevented the formation of an internal market, compounding the economic difficulties caused by the need to import capital goods from abroad. The reliance upon the metropolitan countries both as a market for export production and as a source of essential productive imports for future production is what leads dependency theorists to argue that economic growth within the periphery is <u>dependent</u> upon and <u>complementary</u> to the economic needs of the "center" (Bodenheimer, 1971; Dos Santos, 1970). Periods of metropolitan prosperity are accompanied by a heightened need for the products of the periphery and allow it (or rather, relevant parts of it) to share in the prosperity for a time. But when recessions in the center force demand to slack, their effects are quickly transferred into a brake on the exporting countries' own growth (Amin, 1974, 178).

A chronic tendency toward deficits in the balance of payments is one consequent cost (and indicator) of economic dependence (Amin, 1976, 251-60; Dos Santos, 1970; De Janvry, 1977). The purchase of imports usually requires foreign exchange, not local currency. Foreign exchange is in turn acquired by the sale of exports. But two post-war trends have retarded the ability of exports to finance imports:
1. The monopolization of the world market has tended to raise the price of metropolitan products while suppressing the price for exports from the periphery (Amin, 1976, 164; Burbach and Flynn, 1980, 134; Dos Santos, 1970; De Janvry, 1977; Sau, 1975).

2. Improvements in technique have allowed the metropolitan countries to become increasingly self-sufficient in the traditional agricultural products that they have imported from the periphery (Dos Santos, 1970; Vuskovic, 1980).

Deficits in the balance of payments are a barrier to further importation from the metropoles that can only be overcome by international borrowing, leading to the "debt dependence" that has become another common feature of disarticulated economies. Payer (1971, 1974) has demonstrated that the "austerity" measures required by the IMF⁴ to re-establish credit-worthiness frequently compound the underlying causes of the deficit, thereby perpetuating the need for further loans.

The final economic attribute of dependent countries central to dependency theory is their general subordination to the power of the multinational firm. This subordination is manifested not only by the absence of an indigenous capital-goods sector, but also by:

I. the progressive de-nationalization of the most dynamic sectors of local capital (e.g.--plastics, electronic components), as local producers are bought out or merged with multinational capital (Barnet and Muller, 1974; Frank, 1964; Johnson in Cockcroft, 1972; U.S. Senate, 1975);

2. foreign ownership of local productive installations. Profits from these are both re-invested locally and remitted to the parent firm. When the volume of profits repatriated to the metropolitan headquarters is large enough, the outflow of capital exerts another downward pressure on the balance of payments (Amin, 1976, 251-60; Dos Santos, 1970). The greater the extent of denationalization and foreign control, the less economic activity promotes local accumulation, and the more it assists metropolitan accumulation instead (Amin, 1974, 1976; Johnson in Cockcroft, 1972).

From the dependency viewpoint, disarticulation, extroversion, metropolitan domination, and balance of payments crises form the economic complexion of contemporary dependency (Amin, 1974). But they are not eternal, nor have they always taken this form. The historic evolution of the world-economy has imposed different requirements at different times on both the metropoles and the dependent countries. Amin (1974, 39-43) posits the existence of three broad phases within this evolution:⁵

I. The era of mercantile expansion (c. 1450-1800), in which European capitalism was still developing. Non-European economies were more or less forcefully subordinated to the requirements of the conquering power(s), and/or their economic surpluses simply expropriated.

2. The era of competitive capital within Europe (c. 1800–1880), also corresponding to the full consolidation of the colonial international division of labor (raw materials and plantation products in exchange for manufactured goods).

3. The era of monopoly capital (within both Europe and the U.S.) (c. 1880-?), during which direct foreign investment became possible, and the structure of dependent economies began to assume their present form.

Bodenheimer (1971, 39) points out that one consequence of this long evolution of the world-economy and its effect on the world division of labor has been to internalize the structures of dependency within the dependent countries themselves. Remarking on Latin America today, she notes that

. . . dependency should not be taken to mean simply external domination, unilaterally superimposed from abroad. No less important than foreign exploitation is the fact that all classes and structures in Latin society have to a greater or lesser degree internalized and institutionalized the legacy of dependency. Thus, even the sudden disappearance of the United States and every other dominant capitalist nation would not necessarily or immediately signify the end of Latin American dependency (1971, 39).

So although it is a long-run outcome of the forces of the world-economy, dependency is not solely an external condition. Nor is it entirely economic. Dependency theorists argue that peripheral societies share certain common class and social structures, political institutions, and ideologies (Amin, 1976, 333-370; Cockcroft, et al., 1972; Dorfman and Mattelart, 1975; Wallerstein, 1976, 1977, 1980).

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Over the course of this chapter, the general points raised above will be elaborated from an historical perspective. Because the contemporary shape of dependency is linked so closely to the development of the world-economy, the evolution of the latter will first be sketched out. Throughout, the focus will be on why the dependency paradigm views the development of the periphery as qualitatively different from and subordinate to that of the metropolitan countries. Next, the contemporary agricultural and industrial sectors of the countries of the periphery will be examined. The purpose of this section will be to show that both of these sectors interact mainly with the metropoles (instead of each other), and that a product of this interaction is the perpetuation of large disparities of income and wide-scale poverty. After the discussion of the mechanisms of poverty, we will finally turn to the population question. In this last section, the attack on the neo-Malthusian position represented by Coale and Hoover (1958) by both dependency and non-dependency writers will be reviewed, followed by a portrayal of the position on population that is now emerging among some new demographers writing within the dependency paradigm.

By the end of the chapter it will hopefully be apparent that the Malthusian/Marxist debate has survived largely intact. Just as certain demographers (e.g.--Coale and Hoover, 1958; Hawkins, 1970; I.B.R.D., 1974; U.S. A.I.D., 1971) writing within the modernization perspective have argued that the main barrier to economic growth facing the Third World today is that there are too many people chasing too few goods (as did Malthus); likewise, dependency theorists have counterattacked with the argument that poverty is social--that the production of goods is less important than their distribution (as did Marx).

I. THE FORMATION OF ARTICULATED CAPITALISM

The "long" 16th Century (c. 1450-1640)⁶ witnessed the transition from feudalism to capitalism within key parts of Western Europe. It was during this era that wool, coal, and iron production emerged as leading sectors around which the rest of European economic growth revolved (especially in England). Although the European experience provides the inspiration for the model of economic development endorsed by modernization theorists, dependency theorists argue that in two fundamental respects it remains separate from that of the Third World.

The first--and ultimately decisive--difference is that the infant industries of early European capitalism were allowed to muddle toward production efficiency without being challenged by any superior non-European competition.⁷ The reasons for this are in turn two-fold: first, because of the restrictions imposed by the technology of the day, transport costs remained high enough to limit long-distance trade to the exotic and luxurious. The simple products of everyday life <u>had</u> to be produced locally by and for most people, or else their cost would have been prohibitive. This is even more true of the bulk products used by the large producers in both agriculture and industry (the truly important "consumers" of the time (Amin, 1974, 156)). The second reason is apparent: Europe's early industrialization was unique. There were no competitors. These conditions combined to impose a certain autarchical character to Western European development. For lack of cheaper alternatives, the inputs of certain major industrial branches (i.e.--iron, coal, wool) <u>had</u> to be restricted to outputs of others within Europe.⁸

The second (and closely related) major difference between Europe then and the periphery today lies with the nature of the internal market. In contrast to the periphery today, the overall growth of production remained balanced and constrained by the growth of demand within the <u>internal</u> market. There existed what De Janvry calls a "necessary relation" between the two (De Janvry, 1977). To be sure, "mass" markets as we think of them today were precluded by the general decline in real wages of the time⁹ (Hill, 1961, appendix; Wallerstein, 1976). But among the mutually trading gentry and merchant-industrialists, sufficient demand existed to provide acceptable profits for industrial accumulation and growth.

These two factors--the "necessary relation" between production and consumption, and the corollary interdependence of industry and agriculture--are

65

the essence of an articulated economy. Dependency theory argues that their early appearance in conjunction with industrial growth allowed Europe a decisive edge in its subsequent dealing with potential competitors.

But what of those colonies of European settlement that have since evolved to core status in the contemporary world-economy (U.S.A., Canada, Australia, New Zealand)? Like much of today's periphery, they were once colonies and their industries had to fight uphill against established European competition. Yet they still emerged to become autonomous members of the world community. What allowed for their success? Dependency theory argues that it reflects a connected chain of unusual conditions.

Their generally temperate climates had long sustained low population densities, discouraging the evolution of large and well-organized civilizations (Frank, 1978, 29). So even small numbers of militarily equipped Europeans could penetrate and control large areas with absurd ease. At the same time, the similarity of the climates to those of Europe lured settlement because of their suitability to European agricultural methods. During the early period of initial settlement, the seeming absence of immediately profitable resources (from the perspectives of the mother countries) allowed the settlers to build their own economic infrastructure relatively unfettered by the European restrictions on land use and labor mobility that were typical for the Caribbean and Latin America (Amin, 1976, 365; Frank, 1978, 192-93).

The culture and ideology brought by the Europeans accepted private property and commodity production, providing a fertile ground for an exceptionally pure form of simple commodity production¹⁰ without the constraints of competing modes of production. As Mandel observes, this had an important impact on the future level of wages.

In the "empty" countries of Australia and New Zealand the whole population was incorporated from the outset into the capitalist production of commodities. This population consisted principally of independent producers who were themselves owners of their means of production (proprietors of the extremely cheap or free land which was available in abundance) and who were therefore guaranteed **a** high minimum level of existence from the very start, with which the price of the commodity of labor-power had to compete in order to allow wage-labor to come into being at all (1975, 364).

Relatively high wages helped to foster both a consumer market and the accelerated development of machinery to replace labor. Although in the northern United States and Canada wages were later driven down by the mass emigrations from Europe, the later industrialization of the 19th Century was ultimately boosted by that initial interest in capital-intensive investment (Mandel, 1975, 367). When the drive toward industrialization began in earnest, this distinctive history favored its success. Thanks to an early and informal economic freedom, the ample resources of these areas lay mostly within local control. Meanwhile, the abundance of self-supporting agricultural independent commodity producers assured a growing "effective demand" on the internal market.

So in these regions too we find the essential elements of articulated economies. First, high transport costs made European imports expensive, while home country disinterest in these colonial "poor relations" allowed the colonists the freedom required to construct their own self-centered production facilities with greater autonomy than granted elsewhere. Second, European "neglect" encouraged local and independent proprietorship over the land, which promoted high incomes and gave rise to a substantial consumer demand for local products. What resulted was the emergence of autonomous centers composed of "sectors that carry out substantial exchanges among themselves" (Amin, 1976).

II. THE HISTORIC EVOLUTION OF PERIPHERAL ECONOMIES: THE "DEVELOPMENT OF UNDERDEVELOPMENT"

A. MERCANTILE CAPITAL AND THE DESTRUCTION OF NON-EUROPEAN POWER

By the time of European exploration, much of the world was already densely settled and organized into variants of the same general mode of production--which Amin calls "tributary"¹¹--represented by feudalism:

Non-European precapitalist societies were not fundamentally different from those of Europe, although the combinations naturally differed from those found in feudal Europe (Amin, 1974, 141).

This essential similarity reflects the necessary dependence upon the land that characterizes all pre-industrial societies. Its fundamental unit was the village, over which was imposed a ruling class exacting a "tribute" legitimated by religion. Sometimes long-distance trade made an important contribution to the surplus product (e.g.—Africa (Coquery-Vidrovitch, 1976)), but always it was the organized production of the village that provided the economic backbone for most people.

So when the early superiority of European marine technology brought the Portuguese and Spanish into face-to-face contact with African and Asian cultures for the first time, the Iberians regarded them as trading rivals (or sometimes partners) on an equal basis (Frank, 1978, ch. 1; Rodney, 1972, 8). As Frank notes:

In the sixteenth century then, the level of technological and economic development of the trading partners was still qualitatively equivalent, and trade between the Europeans and Africans was carried on to the mutual benefit and with the mutual respect of both (1978, 39).

The same parity of technique and organization obtained between Europe and Asia as well. When the Portuguese and Dutch fought to gain a monopoly on the Asian trade, the pre-existing network that they were trying to insert themselves into had antedated their arrival by hundreds of years. Even after the Dutch had (temporarily) succeeded in monopolizing <u>European</u> trade with Asia (c. 1620), their ships carried only around 17% of the intra-Asian tonnage (the rest being carried by the Asians themselves).¹²

LATIN AMERICA

The obvious exception to this initial equality was Central and South America. Yet even there the astonishing speed of the Spanish conquest resulted mainly from disease (McNeil, 1963, 626-28).¹³ Within 150 years, the Indian population of "New Spain" plummeted from a high of around 30 million to one and a half million; while that of the Inca state dropped by 50% (Stavenhagen, 1975, 220). Parallel with this demographic decimation was the loss of local political and economic autonomy (Frank, 1978, 30; Stavenhagen, 1975, 220). Henceforward, the social surplus--although at first produced as before, with the villagers yielding a portion of their labor to the (now Spanish) state mines and fields--was exported abroad to the world market. Eventually, as the demand for gold rose, successive forms of ever-increasing exploitation completely destroyed traditional village production (Frank, 1978, 40-45). But the Spanish subjugation and distortion of the Amerindian life-style was unique at that time. Frank notes that:

... the circumstances of the Spanish colonization of Mexico and Peru differed qualitatively both from the initial mercantile relations between the Europeans and Asians or even between the Europeans and Africans. . In Asia and Africa, the European commercial contact did not--and did not yet need to--transform the existing modes of production in order to produce the goods that entered into external trade and the European-centered process of capital accumulation in the Sixteenth Century (Frank, 1978, 44).

AFRICA

As with Asia, the initial traffic between Portugal and Africa was in luxuries, and the immediate impact of the trade on the latter was limited (Wallerstein, 1976b). Even then, however, small numbers of slaves were taken to work on Portuguese sugar plantations at Madeira and Cape Verde (this trade being incidental to the primary Portuguese interest in African gold) (Frank, 1978, 49; Galeano, 1973, 71; Rodney, 1972, 87; Wallerstein, 1974, 88). But the inflationary impact of the Spanish gold coupled with a rise in the demand for sugar soon encouraged the Portuguese to extend sugar production to Brazil as a tool in their competition with the Spanish. When it was discovered that only African laborers could survive and produce at a profit, the African slave trade began to flourish (Frank, 1978, 49).¹⁴

Before the wide-scale trading in slaves by Europeans began, Africa's development south of the Sahara had been commercially linked with that of the Arab world. But although the Arabs had themselves purchased slaves, their main trading interests had lain with other items. This trans-Saharan trade had historically supplied most of Europe's gold supply and a growing amount of its cloth, in return for which successive African trading states had imported horses, salt, drugs, and copper.

The appearance of the Europeans on the Atlantic coast eventually upset these traditional routes in a double sense. First, the old trade routes rapidly became obsolete, weakening the economies dependent upon them. Later, mounting interest in slaves destroyed the market for other exports (Amin, 1976, 49-50; Wallerstein, 1976b). By the middle of the 18th Century, the European demand for slaves had become nearly exclusive, and an active effort was begun to destroy the production and trade of other African goods (Rodney, 1972, 11922). Overlaying the Arab slave trade, European raids for slaves originating at the coast initiated a chain reaction of destruction that eventually penetrated most of Africa: the deliberate blockage of alternative exports by the Europeans choked the production of textiles and metals, while technology regressed and agricultural production stagnated (Rodney, 1972). Where internal African trade persisted within reach of European guns, it was broken by force (Amin, 1976, 321; Rodney, 1972, 120-22).

These developments were resisted by those African societies not profiting from them. But the superiority of imported firearms eventually destroyed resistance. Even among those coastal states whose power and wealth grew because of the slave trade, European imports allowed the development of African production to become sacrificed to the lure of immediate consumption (Frank, 1978, 134). These developments, Amin argues, eventually reduced Africa to becoming "a periphery of the periphery" (Amin, 1976, 320).

ASIA

The last major region to complete its subordination to Europe was Asia. Despite the gradual (and indirect) consolidation of control by the Dutch over agricultural production in and around Java, they had been unable to convert their profits into a solid industrial base at home (Frank, 1978, 85-86). Their concentration on trade monopolies and banking was unable to sustain their hopes of hegemony, and their power had declined steadily from its peak in the mid-1600s. Consequently, a century later all of China and Indochina were still genuinely independent. But the waning of Dutch power and the collapse of the Moghul empire in India created a vacuum quickly filled by the competing imperial aspirations of the British and French. By the beginning of the 1800s most of Asia had started the transition toward the same fate as the other plantation economies elsewhere (but to a lesser extent, and with locally derived labor). Mandel provides a vivid description of the process as it occurred inside India:

Between 1815 and 1850 British cotton goods conquered India: that country absorbed in 1850 25 percent of all Lancashire's exports. But during the same period the Indian craftsman defeated in this competitive struggle found no place for himself in industry ...

Age-old industrial centres died. Dacca was partly overgrown with jungle. The craftsmen, reduced to idleness, spilt over into agriculture. The vicious circle closed when, after 1833, Britain decided to develop on a large scale in India the production of agricultural raw materials, especially cotton plantations. A people who formerly had exported cotton goods to all parts of the world now exported only raw cotton, to be worked up in Britain and sent back to India as textile goods! (Mandel, 1968, vol. 11, 447).

B. COMPETITIVE CAPITALISM AND THE TRANSITION TO THE INTERNATIONAL SPECIALIZATION OF PRODUCTION

The year 1800 crudely marks a turning point between two phases in the world economy (Frank, 1978; Sau, 1975). Before then, the mercantile accumulation of capital vis a' vis the periphery had largely taken the form of "primitive accumulation"--the expropriation of surpluses built up by others. What had begun during the 15th Century as an attempt to sidestep the trading monopolies of the Arabs and Italians had evolved by the 19th Century into the destruction of all economically significant non-European centers of power. Under direct European control, plantation economies had been established throughout the Caribbean and Asia, and in less than a decade, the British decision to abolish the slave trade would be made partly with an eye to force Africa to follow the same path as well¹⁵ (Wallerstein, 1976b). Meanwhile, capitalism had taken a firm root inside the now-dominant powers of England and France.

Thus by 1800 the stage was in many ways starting to become set for the two complementary paths of national development identified by dependency theory ("articulated centers" vs. "disarticulated periphery"). During the transitional century that followed, individual countries were still able to shift their respective economic positions somewhat, but with increasing difficulty as the period progressed. Geographically, the once European "world"-economy had finally become truly global, and as it closed in on itself uncharted domains vulnerable to fresh plunder disappeared. Economic disadvantage could no longer be offset by military plunder alone. Instead, military success became another reflection of economic strength, which itself had become largely self-sustaining (for the countries of the European center).

Inside of Europe, the level of technological development of transportation and communication in the first half of the 19th Century was still sufficiently backward to allow regional differences in the price of labor and raw materials to persist, imposing "natural" protective barriers around the infant industries of certain newly industrializing countries (Mandel, 1975, 50-54). As the century proceeded, for the "semi-peripheral" and peripheral national economies extending outward from Europe---for whom industrialization, although difficult, still remained possible---these technological price differences afforded inadequate protection. For them, the "light artillery of cheap prices" was potentially devastating without active state intervention and protection. Surveying this period, Mandel points out that all those countries where state intervention succeeded in fostering local industry had independent governments (Italy, Japan, Russia). For them, the destruction of the old artisan classes merely "... cleared the ground for the development of national' capitalism" (Mandel, 1975, 53). But for most countries, this option remained closed. He goes

on:

In regions like Turkey, where these conditions either did not exist at all or only inadequately--because the state was unwilling or unable to perform its role as the midwife of modern capitalism (for example, where it was dominated by external merchant capital like the East India Company), or because foreigners, instead of a native bourgeoisie, already controlled primitive accumulation of moneycapital, and so on--attempts to engender domestic industrialization were bound to fail, although from a purely economic point of view the existing preconditions for them were no less propitious than in Russia, Spain or Japan (Mandel, 1975, 54).

During the 19th Century, the places where foreigners controlled primitive accumulation and displaced local governments (<u>de facto</u> or <u>de jure</u>) eventually included most of Asia and (ultimately) all of Africa. The official policy of the colonial governments explicitly discouraged any production activities except those connected to the export of raw materials (Amin, 1976; Frank, 1978).

This policy had three consequences: first, by retarding industrialization and technological development beyond the time when successful competition with European manufactures was even a remote possibility, ¹⁶ it constrained much of the world to specialization in primary production. ¹⁷ Second, the destruction of the local artisans without providing alternative sources of employment forced them back to the land in smaller plots, thereby accelerating the regression of agricultural technique (Amin, 1974, 150-52; Leys, 1975, ch. 2 & 3). Finally, the use of taxation as an instrument to forcibly introduce a dependence upon money evicted many peasant producers from their own land, leading in the final analysis to a great polarization of income between landlords and peasants. Baran describes the enormous impact of the process as dependency theorists view it:

By breaking up the age-old patterns of the agricultural economy, and by forcing shifts to the production of exportable crops, Western capitalism destroyed the self-sufficiency of their rural society that formed the basis of the precapitalist order in all countries of its penetration, and rapidly widened and deepened the scope of commodity circulation. By outright—in many countries, massive seizure of peasant-occupied land for plantation purposes and other uses by foreign enterprises and by exposing their rural handicrafts to the withering competition of its industrial exports, it created a vast pool of pauperized labor (Baran, 1957, 143).

Even where the peasants were able or allowed to keep their land, the economies of scale accruing to the larger landholders (and their ability to gather and control more surplus labor) enabled them to gain control over the production of profitable export crops at the expense of the peasants (Amin, 1974, 152).

The combined effect of these colonial measures was devastating to the industrial potential of Africa and Asia. Not only did it successfully prevent any potential industrialization at the time, but it also brought into being a selfreproducing class structure that has often paralyzed locally controlled industrial accumulation up through the present. By creating and sustaining the power of landlords (joined later by the export and mining interests) as a ruling class dependent on exports, colonial power essentially institutionalized what would become an official antipathy toward the high tariffs necessary for industrialization within the governments of today's "Third World." For the same reasons, colonial policy left a legacy of low agricultural wages (necessary to high landlord profits) that prevent even today the formation of a significant mass market for consumer qoods that could assist internally-based an industrialization.

Although Latin America escaped colonialism early in the 19th Century, dependency theorists argue that its economic structure evolved similarly to that of Asia and Africa (see esp. Frank, 1967, 1969, 1978; and Galeano, 1973). The preceding three centuries of Spanish rule had seen European settlement and the development of a modest manufacturing capacity appropriate to local needs (and the pre-processing of goods for shipment to Spain and Portugal). But the strict trading restrictions¹⁸ imposed by the crown had prevented Latin American industry from augmenting its growth by independent participation in the growing

Atlantic trade (in contrast to the spurt given to New England's accumulation from its share of the profits from the "triangular" slave, molasses, and rum trade) (Frank, 1978, 185-87; Galeano, 1973, 193-95). Spanish (and Portuguese) policy had the effect of encouraging the growth of Latin America's export production capacity while dampening the growth of manufacturing for internal consumption.

Frank (1967, 1969, 1978) and Galeano (1973) have concluded that this historic bias toward exports at the expense of domestic production was accelerated and sealed by the late 18th Century removal of the Spanish trade restrictions and the consequent jump in the volume of trade between Latin America and Britain. Britain's manufacturing capacity was considerably more advanced than Latin America's. Superior British productivity cheapened her goods, and assured her competitive success against local manufacture (Frank, 1967, 52-55; 1978, 185-89). Later, active British political and military intervention in support of the export interests complemented these economic forces (Frank, 1969, 285; Galeano, 1973, 191). Because of these events, Latin America's political and economic structure during this period grew to resemble those of Africa and Asia. Relative to Europe (and the U.S.), manufacturing capacity was low, while production was mainly channeled into the export of raw materials to Europe.

For the periphery as a whole during the 19th Century, Baran observes that:

Whatever market for manufactured goods emerged in the colonial and dependent countries did not become the "internal market" of these countries. Thrown wide open by colonization and by unequal treaties, it became an appendage of the "internal market" of Western capitalism.

... At a historical juncture when protection of infant industry might have been prescribed even by the sternist protagonist of free trade, the countries most in need of such protection were forced to go through a regime of what might be called industrial infanticide which influenced all of their subsequent development (1957, 174).

C. MONOPOLIZATION AND THE FINAL CONSOLIDATION OF THE WORLD DIVISION OF LABOR

By the final decades of the 1800s, the division of labor and power within the world-economy was largely set. Those countries able to industrialize within a capitalist framework had mostly done so, ¹⁹ while the colonial and semicolonial areas, unable to compete, were consigned to the production of raw materials (or, today, ancillary assembly operations (Clawson, 1977; Vuskovic, 1980)). Meanwhile, within both Europe and the United States, the evolution of capitalism had led to the formation of the first "monopolies" within the primary and capital goods sectors (Mandel, 1968, 393-411; Sweezy, 1941, ch. 14 & 15). Their large size both allowed and required backward vertical integration in order to maximize profits from economies of scale, and in time they extended their search for control over raw materials outward to the colonial world.

It is an elementary proposition of Marxist political economy (from which much of dependency theory is largely derived) that the significance of raw materials to the costs of production rises in proportion to the increase in the productivity of labor (Marx, 1967, v. l, ch. 25, sec. 2; v. III, 108–9, 200, 367-69; 1963, v. II, 516-33). Insofar as monopolization was accompanied by increased labor productivity (both changes reflecting the contemporary revolution in technology),²⁰ it accelerated the consumption of raw materials and magnified the importance of their price. Yet at the same time, prices of commonly used raw materials imported from the colonies had been steadily rising since the turn of the 19th Century (Amin, 1974, 70-79, esp. 73; 1976, 163-71; Mandel, 1975, 58). The result was that, for the first time, it was both technically possible and cheaper to invest in direct production in the colonies (and Latin America) than to import the same raw materials produced by the now-traditional methods (i.e.---family-owned estates).

Prior to around 1880, the export of capital out of Europe and the United States for investment purposes had been relatively modest. For example, as late as 1854, British capital export was merely 210 million pounds. However, by 1914 it had reached nearly 4 <u>billion</u> pounds. Taken together, the <u>average</u> increase in overseas investment between 1880 and 1914 for the leading metropoles of the day (Britain, France, Germany, U.S.) was 3½ times (from figures provided in Amin, 1974, 102).

That portion of this investment capital destined for the periphery went first to re-vamp plantation enterprise. The earlier abolition of slavery had crippled the traditional planter class associated with the old-style family-owned estates, and over the following decades²¹ they sold out to the representatives of metropolitan corporations. As Beckford observes, for the traditional planters, times were hard whether market prices were high or low:

World prices of plantation output were increasingly subject to wide price fluctuations. And whereas periods of low prices forced individual planters out of production, periods of high prices served to induce the metropolitan processing concerns to secure their own sources of raw materials (Beckford, 1972, 111).

The process of foreign corporate acquisition of the facilities for producing raw materials extended beyond formal colonies to "independent" Latin America.²²

The net effect of these corporate ventures was to rationalize the techniques and organization of raw material production, leading to a dramatic drop in prices:

In the 60s and early 70s of the 19th Century, the prices of raw materials imported by Great Britain had reached their highest point since the Napoleonic Wars. The sudden downward plunge began in 1873 and by about 1895 it had reduced the average index of import prices by half! (Mandel, 1975, 58–59n).

But it also had another effect. The ever-increasing size of the corporations and the scale of their operations solidified the auxiliary role of indigenous capital in the periphery, for it raised the "entry level" required for competition to a prohibitively high amount. From a dependency perspective, this assured that the surpluses previously acquired through military adventure could now continue through the "normal" operation of international "trade." Again Mandel:

The domination of foreign capital over the local accumulation of capital (mostly combined with political domination) now subjected local economic development to the interests of the bourgeoisie in the metropolitan countries. It was no longer the "light artillery" of cheap commodities which now bombarded the underdeveloped countries, but the "heavy artillery" of the control of capital resources ...

With the massive export of capital to the underdeveloped countries for the organization of the capitalist production of raw materials there, the quantitative difference in the acumulation of capital and the level of productivity between the metropolitan countries and the economically backward ones was suddenly transformed into a qualitative difference. These countries now became dependent as well as backward. (Mandel, 1975, 56, 60) (my emphasis).

III. UNDERDEVELOPMENT TODAY: POVERTY AND THE CONTEMPORARY ANATOMY OF PERIPHERAL ECONOMY

Dependency theory differs radically from modernization theory in its interpretation of the history of the Third World. The latter perspective---although not denying the depredations of colonialism---still views the <u>long-term</u> effect of the interaction between European capitalism and the rest of the world as beneficial, because it provided stagnant and traditional societies with exposure to more efficient technologies, production methods, and a positive developmental goal (i.e.--Chodak, 1973, 257). Dependency theory argues instead that "traditional" society was gradually transformed into "peripheral capitalism": a distorted social formation that has adapted to the role of facilitating the transfer of value to the metropoles of the center (Amin, 1976).

Complementary to this divergence of historical opinion is the split in their respective understanding of the general structure of the economies in the Third World today. This division in understanding is fundamental, for out of it necessarily flows divergent views on the sources of contemporary poverty, its treatment, and its links with population growth.

Modernization theorists have tended to see Third World economies as "dual," containing within them two distinct sub-systems, "traditional" and "modern." The traditional sector refers to the rural subsistence peasantry, whose values and production techniques seem the most isolated from those of metropolitan capitalism and whose markets are local (or non-existent). It will be recalled that it is this sector that modernization theory targets both as the arena needing the most improvement in productivity and also as the largest source of population increase. The other, modern sector refers to the urban centers, where production occurs with advanced technology, and markets are worldwide. For the modernization theorists, therefore, the modernization process involves finding means whereby the rural areas can "catch up" with the cities, while at the same time providing incentives for the expansion of urban industry so that it might provide sufficient jobs for the peasantry expelled from the countryside. Of the factors of production isolated for analysis by neo-classical economic theory²³ (land, labor, and capital), the relative paucity of capital is what is seen to be the single most important barrier to economic growth in the Third World. Foreign investment is therefore applauded as a practical means of installing working capital in developing countries. (It provides jobs, exposure to "modern" techniques and life-styles, etc.) Essentially, the economic prescription of modernization theorists is to stimulate local and foreign investment, raise the

productivity of agricultural production, and encourage consumptive life-styles to expand the internal market.

Dependency theory does not dispute the appearance of a "dual" economy in the countries of the periphery, especially in regard to enormous variations in productivity between sectors (Amin, 1974, 262-92; 1976, 225-26), or the differences in the types of goods destined for the local markets as opposed to those bound to the world market (De Janvry, 1977). But its analysis of these appearances differs, for it traces them to a history of domination from the outside. What follows is a sketch of the main types of economic institutions and forces sustaining poverty within the Third World as specified by dependency theory.

A. AGRICULTURE

Agriculture is still the single most important source of employment within the periphery, even in the relatively more industrialized continent of Latin America (Dadzie, 1980; Hopper, 1976; Perelman, 1977; Stavenhagen, 1974). Specific differences in colonial history have led to various ways of organizing production (e.g.--the quasi-feudal latifundia of Latin America, the plantations of Asia, the independent cash-crop producers of West Africa) (Amin, 1976, 328-32; Burbach and Flynn, 1980, 85-90; Stavenhagen, 1975, ch. 5). But the economic imperatives of production for the world market have begun to impose a certain homogeneity on this legacy of diversity. Today, these different organizational forms can be largely resolved into 2 essential patterns: large-scale plantations co-existing with the tiny plots of subsistence farmers (sometimes the descendants of ex-slaves), or small-scale cash-crop producers--either renters or owners--who may also double as subsistence producers. The greatest concentration of the plantations is within and around the Caribbean, and portions of South and Southeast Asia. The workers are usually migrant, seasonal, and landless, although they may belong to families that own or rent plots near the plantation. In the latter case plantation employment is perceived as a necessary evil to make up for the inadequate returns from their families' own small plots (Beckford, 1972, 18-29, 252).

Smaller scale peasant cash-crop production is the typical form taken in former "French" West Africa, India, Mexico, Egypt, the Sudan, and scattered portions of Latin America and South Asia (Amin, 1976, 318, 335). As with the large estates, the produce from these farmers passes ultimately into the hands of the large international food companies for global marketing, although it may first take the form of rent to local landlords. Despite the apparent independence of these peasants, their poverty is like that of the plantation worker because they have little choice over whom they can sell to or at what price (Burbach and Flynn, 1980, 124; Perelman, 1977, 113). At the same time, they have little control over the price of production inputs (e.g.,—the peasantry of the Sudan (Barnett, 1975)). Often in debt to their landlords, they are rarely in a position to afford the equipment that would improve their output. Their holdings are also too small and dispersed to allow such equipment to yield economies of scale (Saini, 1976). Consequently, effective control over agricultural productivity-and also incomes-lies with the landlords and corporate plantation owners. Mexico provides a good example of this inequality of access to production technique. One of the early initiators of the "Green Revolution" there reports that a mere 7% of the farms, holding between them 20% of the agricultural land, account for 45% of Mexico's agricultural production (Wellhausen, 1976).

Meanwhile, in 1970, 11% of the landowners held 60% of the agricultural land (Casanova, 1980).

The dependency perspective argues that both of these patterns--large plantations and small cash-crop producers--are ultimately controlled by investors from the metropolitan countries. It maintains that foreign control ultimately sustains poverty within both agricultural patterns, while increases in productivity are either retarded or their benefits transferred abroad.

UNEQUAL MODERNIZATION, SEMI-PROLETARIANIZATION, AND THE PERSISTENCE OF THE SUBSISTENCE PEASANTRY

The record of recent efforts to modernize agricultural techniques and raise yields per hectare exemplifies the structural constraints on growth imposed by the enormous inequalities of land, income, and power within the periphery today. Development economists have suggested that such productivity increases in the agricultural sector would (in theory) lead to a triple benefit: the price of food for local consumption would drop (while foreign exchange earnings from exported products would rise), more labor would be available for industrial employment, and increased agricultural profits could raise the national fund available for reinvestment. While some of these predictions later proved correct, the overall hope--of a sustained acceleration in the rate of development--remained unrewarded.

Certainly there is room for a considerable increase in production. Mexican production, for example, could be quadrupled if irrigation, fertilizers, and highyielding grain varieties were all used where potentially appropriate (Wellhausen, 1976). In northern India, the Indo-Gangetic Basin alone could theoretically produce 80% of the world's current output (Hopper, 1976). However, such ambitions require vast sums of money for irrigation, fertilizers, pesticides, and (where appropriate) machinery---items which historically have not been produced or used in Third World agriculture (Hopper, 1976). But the lure of such bountiful increases has nevertheless spurred government efforts to provide loans to farmers to encourage these productive investments. Government loans and spending on agriculture rose 50 times between 1950 and 1972 in Colombia; in Brazil, a quarter to a third of all state credit available since the early 60s has been for agriculture, and at an interest rate only half that available for industry (Burbach and Flynn, 1980, 97). Related policy measures have been price supports for favored export crops and subsidized prices for fertilizers and pesticides (Perelman, 1977).

The early results of these programs were impressive. Within four years of the release to general availability of the new, high-yielding varieties of rice and wheat, their use could be found worldwide (Hopper, 1976). Another indication of what appears to be a general productivity revolution in the countryside is the increased use of fertilizers. In 1950-1960, only 10% of increases in overall agricultural yield were accounted for by fertilizer application (the bulk being due to pulling more land into production), whereas that figure rose to 40% by the mid to late 60s (Mellor, 1976; Scrimshaw, 1980). Inside Latin America, just between 1965 and 1975, fertilizer consumption rose three times, while in Mexico it shot up 200% (Burbach and Flynn, 1980, 84-85).

The essential reason for these dramatic figures was the increased profitability of fertilizer application, in turn made possible by the initial government subsidies and price supports (Burbach and Flynn, 1980, 84–85; Wellhausen, 1976). However, the maintenance of this degree of government support has been made nearly impossible by a combination of the rise in world oil prices with corporate manipulation of the world fertilizer market (Mass, 1976, 119-22; Mellor, 1976; Perelman, 1977, 172-75). Now, without government support, it is only the richest farming businesses that can continue to indulge at will in these inputs. Yet even before these world market disruptions, economic inequalities imposed constraints on the spread of "Green Revolution" techniques, while the advantages offered to those who could afford them turned back upon and exacerbated those inequalities (Saini, 1976).

The bottom line for most significant improvements in land productivity is irrigation (it is a necessary condition for the application of many other techniques). But it is sufficiently expensive that it is generally limited to wealthier holdings.²⁴ Perelman estimates that in India in the middle and late 1960s, implementation of the recommended amounts of irrigation, fertilizers, and pesticides on a modest 5-hectare holding would have cost 10-12,000 rupees, which works out to about 23 times the annual per capita income at 1965 exchange rates. Even at that time, one third of the farmers in South and Southeast Asia were poor enough that their farms were actually net importers of grain (Perelman, 1977, 147-48). From the beginning then, technical improvements have been limited to the richest 25 percent. But for those that could afford it, the payoffs were handsome.²⁵ As one might expect, such returns along with official government help lured all manner of wealthy entrepreneurs out after land, sending values up several hundred percent in a few years (Perelman, 1977, 148). Rising rents have reflected these values, driving marginal peasants out of production in an ongoing process of quickening land concentration. It is this polarization that dependency theorists label as one of

the fundamental causes behind the mass poverty in the periphery today.

One of the casualties of this process has been the production of cheap staple food for mass domestic consumption (Scrimshaw, 1980). Because so many Third World economies derive their foreign exchange earnings from agricultural production for export, their agricultural credit policies have effectively discriminated against improving the productivity of the "home" crops--in Guatemala, for example, for the decade 1964-73, only 3% of all disbursed government credit went to encourage the production of the rice, corn, and beans commonly relied upon there, while the comparable category of loans in Brazil received only 5% (Burbach and Flynn, 1980, 104). It is not surprising to learn further that because export production is either owned or controlled indirectly by major investors, the discrimination against crops is at the same time a discrimination against all but the wealthiest classes of farmers (Burbach and Flynn, 1980, 104; Perelman, 1977, 115; Scrimshaw, 1980; Wellhausen, 1976). The predictable results for Latin America have been recorded by Burbach and Flynn, but their observations would hold for much of the periphery today:

What this pattern adds up to is a common trend throughout Latin America toward shortages of basic foods, a growing dependence on increasingly expensive imported staples, and rising food prices. In Mexico, for example, food prices have gone up between 25 and 30 percent a year since 1973, and by the late 1970s the country was importing record amounts of grain (p. 105).

Or, as more simply put by Perelman:

Besides the destruction of traditional patterns of social relations, the Green Revolution is seriously disrupting traditional patterns of nutrition (1977, 150).

Another reflection of the process of land concentration can be seen in the concurrent process of proletarianization. In its direct form, this dispossession of the peasantry has been similar to the "enclosure" movement of 15th through 17th

Century Europe. Just as before, quasi-feudal landlords and (in Latin America) hacienda owners have often found it to be more profitable to expand their holdings and hire on laborers only when needed, rather than sustain a year-round force of tenants and their dependents (which had been the traditionally widespread practice). Evictions have therefore become commonplace in Latin America and Asia (Burbach and Flynn, 1980, 142-43; Perelman, 1977, 148-50).

Economic forces have also incurred a more indirect form of dispossession. With land values rising, the poor have found themselves locked into a fixed amount of land: when conditions force small farmers to sell their land, it tends to be bid beyond the reach of other nearby poor. Because land is usually the only source of economic independence available, successive generations of families that still have some may cling to it long beyond the time that it fragments into a sub-economic absurdity (see especially Mamdani, 1972, ch. 4; and Folbre, 1977). Figures gathered on Latin America by Burbach and Flynn (1980, 99) indicate that over the last generation (from after WWII to the present), the number of fractional holdings (i.e.--1-10 hectares) has often more than doubled, while the average holding has dropped as low as 1.5 hectares in some areas. Holdings this small explain why many farms have become net food importers. For the same reason, increasing numbers of peasants are finding it necessary either to supplement their farming with wage-work or else abandon it altogether. Migrant landlessness--or small-holding supplemented by migrant wage-work--is now the condition of perhaps one-half of the world's rural poor in the capitalist periphery, up from the 10 to 20% that was more typical of the early 1960s. This massive spasm of proletarianization--the transformation from peasant to wage-worker-further appears to be a world-wide (if uneven) process.²⁶

Yet the forces behind the dispossession process are countered and retarded by the low level of the available wages--just as wages have increasingly become a necessary supplement to the remaining farmers, likewise the inadequacy of the prevailing wages insures that farming remains an essential supplement to wages:

For a growing number of these part-time workers, part-time peasants, wages are now their main source of income, even though desperately low wages mean continued subsistence farming is still necessary for survival (Burbach and Flynn, 1980, 148).

For dependency theorists, these conditions explain the persistence of the subsistence peasantry. They believe that it is not derived from the stubborn tenacity of traditional values or culture, but instead reflects the disagreeable nature of the available alternatives: low wage agricultural labor or urban unemployment. The depth of the prevailing wages, and the implicit assumption by employers that they will be supplemented by subsistence production, can be illustrated by several different reports. For example, in Brazil, 43% of the labor force earns less than the legal minimum wage of \$92.00/month, which is itself estimated to be only one-third of the cost of the basic food basket required for human health. Not surprisingly, 40% of the Brazilian population is malnourished (Burbach and Flynn, 1980, 105). These statistics are also sadly typical for other, less notoriously repressive economies. Colin Leys reports that in Kenya at the time of his research (through 1971), plantation workers were the most favored stratum of agricultural workers, being

the best paid, and were in addition provided with housing and some other services by the employers. Yet even their wages were clearly based on the assumption that their families produced their own subsistence from cultivation, and as one moves down the scale of wages this assumption becomes more and more obvious until one finally reaches the casual laborers and the squatters. In fact most of the agricultural work-force was drawn from families who were at best poor peasants . . Consequently, although the various strata of the agricultural labor-force were being increasingly separated from their means of production, the conditions of their wage-employment forced even the most proletarianized of them to depend on growing food crops ... (Leys, 1975, 182-83).²

The low wage levels prevailing for agricultural work reflect for dependency theory the central fact of peripheral society: the disarticulation between production and consumption. Or, put differently, since the most significant economic production (of <u>all</u> sectors) is for export, profit rates are not affected by the absence of a purely local effective demand. As Amin has noted:

Wages appear here not as both a cost and an income that creates a demand essential for the working of the (economic) model, but merely as a cost, with demand originating elsewhere--either externally, or in the income of the privileged categories of society (Amin, 1976, 194).

Wages can thus sink as low as political repression will permit, there being no strong economic force to prop them up, and several acting to keep them down. Three in particular deserve mention:

(a) The growing number of unemployed themselves. For example, unemployment in Latin America is typically 20 to 30%, and highest in the countryside. Seasonal underemployment in both Latin America and Asia is high because the demand is limited to harvest workers, while the Green Revolution and associated technologies have reduced overall employment/acre (by as much as 40% in Pakistan). In Sri Lanka, unemployment for those in the 15-24 age group is 88%; in Java, only 14% of those annually joining the work-force find jobs (Burbach and Flynn, 1980, 149-69; Perelman, 1977, 116, 148-50). The internal competition for jobs between these millions of workers acts as a classic reserve army of labor to drive wages down to their lowest possible level.

(b) The falling prices of agricultural exports as against the rising prices prices of manufactured imports. This inequality of the terms of trade is a handicap common to much of the periphery²⁸ (Amin, 1974, 70–80; Burbach and

Flynn, 1980, 134; Mabele, et al., 1980; NACLA, 1976; Sau, 1975). This relative decline in the price of agricultural produce is at the wholesale level, so it assists the profits of those firms responsible for processing and marketing those items in the metropoles. However, for those producers who are not in partnership with large metropolitan-based firms, the easiest method available for defending their threatened profits is to suppress wages.

(c) The necessity of earning foreign-exchange via exports, and the general inability to compete with the techniques and capital resources of metropolitan corporations in the production of those exports, requires the attraction of foreign capital investment to sustain industrial growth (in the absence of autarchy). At one time, unique ecological conditions or raw material deposits sufficed to lure investment. But aside from new discoveries or modernization of old plants, the only incentives remaining to attract foreign capital today are low taxes and wages. Hence international competition for investment acts globally to suppress both. (This pressure affects wage rates across all sectors of the peripheral economy, not just agriculture.)

The effect of the rising cost of farm production on the independent peasantry, combined with the absence of either a political or an economic floor to wages, is producing a widening polarization of income and an unrelenting crisis of mass destitution. Perelman writes that

In Indonesia, the top 20% of the population earned 10 times as much as the poorest 20 percent in 1950; by 1963, the ratio had increased to 17 times. Similar trends have been observed in Puerto Rico, Argentina, Mexico, Colombia, and Brazil (Perelman, 1977, 115-16).

These statistics have been corroborated by Casanova (1980) for Mexico, where he reports that in 1958, the richest 5% of the population received 22 times the amount of the poorest tenth; in 1972, that ratio had risen to 39 times. Similarly

in India between 1961 and 1971, the share of the poorest 10% dopped from 2.5 to 2% of the income, allowing the wealthiest 10% to receive 51% of the national income (Krishna, 1980). Even by the conservative standards of the Indian government, the numbers of the poor now equal around half of the population.

Malnutrition is correspondingly typical for much of the world's poor, while most of whatever income they do receive is spent immediately on food²⁹ (Krishna, 1980; Mellor, 1976). Again within India, the poor half of the population spends over two-thirds of its income on food, yet their share of the total national expenditure on food amounts to only one-third. Despite the fact that agricultural production is now easily capable of supplying the population with adequate amounts of food, and their reserves are estimated to be capable of holding out for 2 or 3 successive droughts, still 25% of the population is starving (Krishna, 1980).

Malnutrition is common in much of the periphery. In Latin America, in 12 of the 23 countries there, over 50% of the population do not get paid enough money to feed themselves, and for the continent as a whole that level of destitution stands at 40% (Dadzie, 1980). Some countries are particularly distressed: 80% of Guatemala's children remain chronically malnourished while in Mexico this state extends to 80% of the entire population (Burbach and Flynn, 1980, 105). Worldwide, the United Nations Food and Agriculture Organization estimates that nearly a quarter of the world's population is unable to afford even 1600 calories a day--yet that same organization has found that agricultural laborers (as these poorest people often are), when given food freely, can consume 3555 calories/day without gaining weight³⁰ (Mahler, 1980; Scrimshaw, 1980).

That food supplies consistently outpace population growth--and are

projected to continue to do so for some time--in the face of conditions like these both reflects the low wage rates and explains the necessity of subsistence production. In the next section we shall see how dependency theorists trace the failure of agricultural modernization to stimulate development to the stagnant nature of a development based on external domination.

FOREIGN CONTROL OF AGRICULTURAL ACCUMULATION AND THE TRANSFER OF ITS BENEFITS ABROAD

Wages are low in the periphery because the most important demand for its products comes from the center. In itself, this fact need not be an obstacle to development. Low wages were typical of the development of the countries of the metropole, and were endorsed by both classical and neo-classical economic theory for their contribution to profits and the rate of capital accumulation. That low wages enrich in the same fashion the ruling classes of the periphery cannot be denied, but their failure to stimulate sustained economic growth there in a fashion paralleling that of the metropoles is viewed by dependency theorists as evidence for a fundamental difference in their economic structures.

The high degree of concentration of capital on the international level³¹ precludes effective competition for the production of most capital goods by investors within the periphery. So those goods must be either imported or produced on-site by local representatives of the major international producers. Since investment in this critically important area is decisive for the direction and independence of future economic growth, the absence of effective control over it by "national" capital renders the development of the periphery hostage to the decisions made in the corporate boardrooms of New York, London, Berlin, etc. So the rate of accumulation made possible by the extremely low wages in

the periphery does not become translated into a sustained, interdependent, and balanced economic development. Instead, investments become shunted off into areas complementary to, raher than competitive with, the commodity domains of the multinational corporations. Certain economic conditions arising from this state of affairs then act to conduct profits and savings out of the country altogether. While true for all sectors of the peripheral economy, the agricultural sector provides a clear example of their operation.

Other than seed, the most important capital-goods inputs for agriculture are fertilizer and machinery. The market for the latter is under the oligopolistic control of only 5 firms: John Deere, International Harvester, Ford, J.I. Case, and Massey-Ferguson (Burbach and Flynn, 1980, 110). Control of production volume and pricing lies with their respective headquarters in the United States and Canada, which is also where the bulk of their production facilities are located. Fertilizer production is not quite as highly concentrated or as often imported, but it is still largely directed by metropolitan-based corporations³² (frequently subsidiaries of the major oil companies, who also produce its primary components) (Burbach and Flynn, 1980, 110-15; Commoner, 1977; Perelman, 1977).

Two of the consequences of this concentration of production facilities in foreign hands is that prices are high, while profits from sales do not remain at "home" to finance future investments, but are instead remitted to their various headquarters (often quite indirectly³³). The high level of prices is due to the monopolization of production, and the opportunity that it creates for price manipulation. The fertilizer industry in particular has been widely accused of market manipulation in order to create and sustain artificially high prices³⁴

(Burbach and Flynn, 1980, 111; Mass, 1976, 117–24; Mellor, 1980; Perelman, 1977, ch. 15). The budgetary strain that can arise from the dependence on imported fertilizer alone is dramatically exemplified by India, which even in 1969 (before prices tripled in the early 70s) was paying out 20% of its export earnings for its fertilizer³⁵ (Perelman, 1977, 170, 175).

That these and other capital goods are often imported means that any economic stimulus arising from increased purchases (the industrial multiplier) is transferred to the countries of the center that make those products, rather than remaining within the country to provide funds for re-investment (Amin, 1974, 223-38). Hence once again, the disarticulation between production and effective demand--the physical, political, and economic separation between the sources of accumulation and its ultimate bneficiaries--acts to extract value from the periphery and prevent the type of accumulation predicted by orthodox development theory (e.g.--Lewis, 1955).

Just as with capital inputs, control over the type, amount, and ultimate sale of much of the produce output from the best land lies with the major international concerns (Beckford, 1972, ch. 5, Appendix II; Mass1976, 109-41; NACLA, 1976; Stavenhagen, 1975, ch. 7). Their degree of monopolization and market control is comparable to that of the U.S. automotive industry. For example, among the most widely consumed products--coffee, sugar, tea, rubber, bananas, and sisal--multinationals have effective monopoly control (Beckford, 1972, 252). Frequently only four firms control more than 55% of the market (Mass, 1976, 114). In the past, control took the form of direct ownership of production (e.g.--Unilever and Firestone in West Africa, United Brands in Central America). Current ideological hostility in the Third World has forced their retreat into the safer and more consistently profitable realms of processing and marketing, from where they can still retain indirect power over production via financing, purchase contracts, and technical assistance (Beckford, 1972, ch. 5; Burbach and Flynn, 102-3; Perelman, 1977, 113). The extent of this directive authority over investment and production is clearest in the case of small and medium peasant landholders who grow products bought in advance by multinationals. The effect of such arrangements on the lives of those peasants involved has been the subject of separate investigations in several different areas.³⁶ The conclusion of one of them, after examining the relationship between Peruvian peasants and the Carnation Milk Company, is typical:

The peasant cannot freely choose what to produce, how to produce it, nor who to sell it to. His autonomy as an independent producer has disappeared completely, and he is formally subordinated to the control of transnational capital.

Of course the largest landholders are not nearly so helpless. But even their sometimes vast operations usually rely on the sales networks of the large corporations because the effective demand within their own countries is inadequate to sustain them. This remains true for the most powerful countries of the Third World, as exemplified by this observation from Burbach and Flynn:

Brazil is the world's second largest agricultural exporter (after the United States) but its national capitalists play a marginal role in world trade. Anderson Clayton is a major exporter of Brazilian cotton, a Coca-Cola subsidiary, Minute Maid, markets Brazilian orange juice abroad, Cargill is a leading exporter of Brazilian soybeans and soya oil, while General Foods buys a large share of Brazil's coffee beans (1980, 134).

The effect of these marketing arrangements is to transfer the binefits of the cost reductions arising from increases in land productivity to the multinationals. (Even the biggest of the actual producers do not have an international monopoly, so they lack the means to regulate pricing.) What results is that competition arising between them acts to encourage prices to drop (or increase more slowly than otherwise) in relation to the reductions in cost. But since the processors and distributors usually <u>are</u> monopolies, they are under no compulsion to pass on such reductions to the ultimate consumers in the wealthy countries, but instead pocket the difference in increased profits. Should bad harvests create price increases (e.g.--coffee and, lately, peanuts and sugar), consumer prices can still be raised to protect profits.

The effect of all of these linkages to foreign capital is interpreted by dependency theorists to mean that agricultural production for export is an extension of the metropolitan investing economy, not an integrated facet of the peripheral economy. The bulk of the profits generated by low wages and metropolitan sales revert back to the rich countries, who also reap the benefits of investments to increase productivity (via both the short-run stimulus to the industrial multiplier from the initial capital investment and the longer run diminution of costs from the resulting rise in productivity). Investments for raising agricultural productivity have not been rewarded by a spurt in autonomous economic growth, but have instead accelerated a pre-existing trend From a technical toward income polarization and mass pauperization. perspective, improvements in yield/acre have been sometimes dramatic, and can be expected to continue. But to the extent that these have contributed to accumulation, they have done so for the benefit of the richer countries instead of the poor. Speaking for the United Nations on this failure of agriculture to either finance or stimulate development, an economist recently summarized:

The principal economic activity other than subsistence agriculture is dominated by exports of primary commodities for which the control of production as well as of market decisions lies at their destinations abroad. Such commodities do not constitute a home base for development; they cannot be reckoned as domestic production surpluses (Dadzie, 1980).
B. INDUSTRY

Polarization of income and spreading landlessness within the agricultural sector has "freed" large segments of the agricultural work-force, and is in turn the underlying reason for the unprecedented explosion of the urban population. This process is most pronounced in those countries where agricultural modernization has been pursued most aggressively (i.e.--Brazil, Mexico, Indonesia) (Burbach and Flynn, 1980, 141). For example, over the past 40 years (1940-1978), the geographic distribution of Mexico's population has exactly reversed: in the earlier year, 65% of the population was rural, while by 1978, that same proportion was living in cities (Casanova, 1980). In a similar fashion, the metropolitan center of Brazil's most dynamic agricultural area, Sao Paulo, is growing at the rate of half a million new arrivals every year (Burbach and Flynn, 1980, 147). In Latin America, it is now common to observe that capital cities contain a quarter or more of their countries' total populations (Stavenhagen, 1974).³⁸ It is these newly dispossessed agricultural refugees that populate the broadening layer of slums that surround so many cities of the Third World today.

On its face, this process appears similar to that which characterized the early periods of urban growth during the industrialization of Europe. There too, an evicted peasantry sought employment from their base in the expanding slums. But the similarity remains superficial. Unlike Europe, industrial employment shows no signs of growing enough to absorb this exploding work-force potential-and in fact the growth of the actual industrial work-force indicates a relative decline against an urbanization that is expanding twice as fast (Amin, 1976, 353; Stavenhagen, 1974). Blocked from industrial employment, these marginalized ex-farmers are shunted into what is euphemistically labeled the "service" sector: street hawkers, domestic servants, prostitutes, gardeners, and occasional day laborers (Amin, 1976, 240-41; Burbach and Flynn, 1980, 156; Stavenhagen, 1974). Unlike the urbanization that both reflected and made possible the industrialization of the central capitalist economies, the urbanization of the periphery remains strangely detached from industrial employment, mirroring the absence of a connection between the agricultural and industrial sectors.

Dependency theory reasons that the cause of this sectoral detachment lies again with the disarticulation arising from foreign control.

Historically, the industrial development engendered by the colonial powers was designed to facilitate the extraction and initial processing of agricultural crops and mineral resources (Amin, 1974, 42; 1976, 206; Hveem, 1973; Jalee, 1973; Johnson in Cockcroft, 1972, 80-81; De Janvry, 1977; Palloix, 1977; Sivanandan, 1979; Vuskovic, 1980). Initial infrastructural investment was correspondingly important, and absorbed over 50% of the foreign investments made by the colonial governments and firms (Amin, 1976, 206). With wages in the central capitalist economies still low, and transport costs higher than today, the motivation underlying these investments was to extract and defend resources. One of the legacies of this pattern was a small industrial work-force, and an effective demand for consumer goods that was limited to the consumption of luxuries by the elite (like that described for Kenya by Stichter, 1975).

Between the wars, Latin America (joined later by Asia and Africa after WWII) sought to escape the grip of the Depression by a state guided and assisted program of industrialization. The collapse of the world market during the Depression served to accelerate what had already been a secular trend toward a falling demand for the primary products of the periphery as against a rising demand for manufactured imports. The result was an upward leap in the deficit in the balance of payments, as a generally sustained demand for luxury imports collided with the plummeting world demand for primary goods exports (Booth in Oxaal, 1975, 56; Vuskovic, 1980).

In an effort to both save foreign-exchange and become more industrially self-reliant, the most industrially advanced countries of Latin America (Argentina, Brazil, Mexico) launched the first drives toward "importsubstitution"--producing domestically what had previously been imported, and erecting protective tariff barriers in the process. The objective and hope behind this policy was that local production could, in Amin's phrase, "climb-up" the ladder from consumer to producer goods via successive investments in everheavier industries. The initial success of this strategy during the Depression and war years encouraged other countries to implement similar policies of their own, contributing to the early post-war optimism about the prospects for industrialization in the "backward areas."

The surge in international economic activity after the war brought in sufficient foreign exchange to finance a modest industrialization in a number of countries, again mostly in Latin America (Booth in Oxaal, 1975). But these benefits were short-lived and constricted for two reasons. First, the international market ceased to provide adequate financing for internal development, mainly because of the unpredictable and generally falling prices of peripheral exports as against the prices of the products of the metropole (this difficulty is compounded by the increasing self-sufficiency of the latter in the agricultural field (Vuskovic, 1980)). This fall in the terms of trade has sometimes been dramatic: Burbach and Flynn point out that in 1960, a tractor could be exchanged against 160 bags of coffee, while a decade later that same tractor required 400 bags (1980, 134). Overall, since the 50s the market values of primary products have declined between 5 and 25 percent (depending on the specific commodity) as against the market values of manufactured goods (Amin, 1976, 164; Sau, 1975). For countries that depend upon agricultural produce for foreign exchange, industrial development has now become an increasingly distant goal.³⁹

But the true barrier to the ultimate success of the import-substitution strategy had little direct connection to the declining terms of trade per se. Rather, the persistence of the distorted and unequal distribution of income prevented the effective market for consumer goods from spreading beyond the narrow confines of the elite. This second constriction, variable from country to country, imposed a definitive brake on further industrial development. The narrow breadth of the market prevented the profitable manufacture of enough different kinds of products to justify the establishment and growth of a selfsupporting capital goods sector. As metropolitan markets were themselves largely inaccessible to peripheral manufactures at this time (due to metropolitan tariffs and superior productivity), the result was industrial stagnation. In the end, it was only the nature of the imports that had changed: local industry is now dependent upon imported capital goods fully as much as the economy used to be dependent on imports for consumer goods (Amin, 1976, 209-10; booth in Oxaal, 1975; De Janvry, 1977; Johnson in Cockcroft, 1972; Vuskovic, 1980).

Even as the strategy of import-substitution was losing its earlier dynamism during the 1960s, new technologies of data processing and communication were making possible a production revolution within the multinational firm (Sivanandan, 1979; U.S. Senate, 1975, 6). In those countries--mostly Latin American--where tariffs had been enacted to facilitate local industrialization, multinationals had been easily able to relocate their sales outlets and some of their production facilities inside to avoid them. But with the information processing revolutions of the 1960s, it became possible to augment the use of these subsidiary operations; to regulate production within the firm on a global scale: commodity components could be produced, assembled, and sold in widely separate places while still retaining a harmonious interlocking of the entire process. Thus liberated from the constraints of distance, productive and assembly operations could be located wherever the wages and/or raw materials were cheapest. This is a fundamental change of the world production process:

The international dispersion of the different stages of production of these goods is a sign of the birth of a world production process in the full sense of the term: the old international division of labor, materialized in the exchange of products, is being replaced by a division inside the firm (Amin, 1976, 211).

The sudden economic viability of these new foreign "export platforms" revitalized the old institution of the "export enclave economy," as is evidenced by the rapid proliferation of "free trade zones"---geographical pockets scattered throughout the world, competing with each other in offering the lowest taxes, wages, and most docile work-forces (Sivanandan, 1979). The places whose governments specialize in procuring these corporate inducements (e.g.--South Korea, Taiwan, Brazil, Mexico, Philippines) have begun to draw rapidly increasing portions of investment capital in manufacturing and semi-automated assembly, reversing the historic post-war geographic and sectoral pattern⁴⁰ (Barnet and Muller, 1974, 128, 132; Palloix, 1977; Sivanandan, 1979; U.S. Senate, 1975, 32-38; Vuskovic, 1980). Already in 1972, a third of all world trade was

composed of intra-firm exchanges, and data for 1971 show that the value of the production of U.S.-based multinationals was four times greater than the value of U.S. exports for that year (Palloix, 1977). Another indication of the growing internationalization of production under the control of large firms is provided by export figures from the underdeveloped world. As late as 1972, 46% of their exports were composed of the traditional raw materials and food, and yet even then nearly 20% was manufactured items. By 1977, the traditional exports had plummeted ten points to 36%, while manufactures had shot upward 12 points to 31% (Vuskovic, 1980). That this reversal occurred in only five years demonstrates the high speed of the entire transformation.

The significance of this shift for our discussion lies with its implications for the control of resources, profits, and industrial accumulation. During the period of import-substitution, it was possible to believe that the modernization of industrial production under the guidance of "national" capital in the periphery was a potential focal point around which local accumulation and eventually national enrichment might occur. But the history of the world-economy over the last 15 years suggests otherwise. The changes that were just sketched out were actualized by the multinational firms--not by national capitalists (Palloix, 1977; U.S. Senate, 1975; Vuskovic, 1980). In fact, these changes occurred largely at the expense of local establishments, who were massively bought out in the process⁴¹ (Barnet and Muller, 1974, 139; Casanova, 1980; U.S. Senate, 1975). The rapid growth of manufacturing output from these areas does not signify the emergence of an interdependent industrial economy (for these factories within the

platforms do not rely upon each other), but can be credited instead to the

growing hegemony of the international firm. Control of industrial production, especially in the most advanced countries of the periphery, now lies decisively in foreign hands.⁴²

As a consequence, for dependency theorists, there have evolved at least three general types of industrial development in the periphery today. The first is composed of a small number of those wealthier countries whose resources or history allowed them to achieve moderate industrialization following an importsubstitution strategy. Today they have the largest internal markets and most elaborate infrastructure, which in turn allows them to draw the lion's share of investment from abroad. The second group are export-enclave economies possessing either a valuable resource (and whose history denied them industrial development opportunities, such as Angola or Zaire), or are participating in the boom of export platforms/free trade zones (e.g.--Singapore). The final, and perhaps largest, category is composed of countries lacking either, whose only chance for development lies with state-controlled or financed investment (e.g.--Sudan, Tanzania).

INDUSTRIAL DISACCUMULATION, FOREIGN INVESTMENT, AND URBAN WAGES

Dependency theorists view the development opportunities available to the first two categories⁴³ as structurally crippled by essentially the same kinds of "leaks" in accumulation that plague the agricultural sector.

The heart of the problem of "leakage" lies with the volume of remitted profits (Amin, 1976, 287-92). It has been demonstrated that, largely in order to facilitate tax evasion, corporate profits from abroad are greatly understated, the official figures being in reality augmented by transfer pricing and the payment by subsidiaries of royalties for the use of technologies developed by the parent (Barnet and Muller, 1974, ch. 7; Hveem, 1973; U.S. Senate, 1975, 10-13, 16-20). Investment funds destined for the Third World are often only a third of the amount of repatriated profits, when both have been tallied for the period 1960-72 (U.S. Senate, 1975, Table 1-4, p. 11, and Appendix Table 1, p. 160). (This reverse flow is noticeably absent for Europe during this time.) Added to this, those investments that are made by foreign firms have of late been almost exclusively financed by locally raised capital arising from local accumulation (O'Connor in Rhodes, 1970, 129-30; U.S. Senate, 1975, Table 1-5, p. 16). Hence external investment capital is rarely a significant source of industrial accumulation. Also, the dominant position of multinational capital in the most dynamic markets (e.g.--electronics) ensures that a disproportionate percentage of locally accumulated profits ultimately becomes exported to the home offices, while local capital, unable to compete, gets diverted into ancillary activities (Perelman, 1977, 118; U.S. Senate, 1975, part 7). Finally, this foreign domination has the additional effect of distorting production toward export activities, just as with the agricultural sector. 44

Moreover, these considerations explain the chronic tendency toward balance of payment crises (Amin, 1976, 287-92; U.S. Senate, 1975, 10-13). In order for international payments to balance, exports earnings must equal payment for imports and profit outflows <u>combined</u>. This can only be sustained if export markets for products from the periphery (generally metropolitan markets) expand faster than the repatriation of profits and imports. (But, ironically, the ability to expand exports may often require raising the rate of importation, thus cancelling the benefit.) If the demand for exports tapers off, a crisis in the balance of payments becomes unavoidable, bringing in its train internal economic and budgetary crises. Accumulation in the Third World, in this way dependent on metropolitan growth and markets, is vulnerable to external forces entirely outside of governmental control (Casanova, 1980).

The past twenty years of import-substitution and export-platform development have also been highly capital intensive (despite the very low wages) (Amin, 1974, 205-23; Dadzie, 1980; Perelman, 1977, 118). From the perspective of the firm (whether locally owned or not) this is entirely rational, but it has restricted the growth of the internal market and perpetuated urban poverty. A sampling of statistics from some of the most industrially developed and fastest growing economies in the Third World suggests the effect of this capital intensivity on unemployment levels and wages. Korea, for example, has had export-platform development boost its manufactured export output 60% between 1960 and 1971, yet in 1970 its rate of unemployment stood at 17 percent-as high as the U.S. rate of unemployment in 1936 and 1939 (Barnet and Muller, 1974, 128, Tables 5 and 6; U.S. rate from Baran and Sweezy, 1966, 232). The same source reports that for other (relatively) industrialized countries in that year, unemployment rates are similarly high: Argentina (19%), Chile (13%), Colombia (20%), Philippines (27%), Venezuela (25%). Even India, which has aggressively pursued a policy of industrial development that has sought to be independent of external investment, finds its level of industrial employment stagnant at 10%, while each year the industrial sector absorbs only 14% of that year's new entrants to the labor force (Krishna, 1980).

These conditions have assisted the maintenance of wage levels that are low even by local standards. (According to one report, a sandwich and a cup of coffee in Singapore costs a day's wage (Sivanandan, 1979).) Another report from Brazil indicates that in 1971, the minimum wage earned by the poorer 40% of the urban population allowed subsistence only if one worked for 15 hours/day, 7 days a week (Wood, 1977). U.S. Tariff Commission figures for 1970 show that for the international labor force of the electronics and textile industries (i.e.—Mexico, Hong Kong, Taiwan, Korea, Singapore, etc.), wages typically range between \$.14 and \$.50, while comparable work in the United States at that time commanded between \$2.20 and \$3.60/hour (Barnet and Muller, 1974, 127, Table 4). In Mexico, wages across all of the manufacturing sector collectively amounted to only 15% of the gross product of that sector (Casanova, 1980). Insofar as it is not in the interest of either the governments or the investing firms to raise these wages, there is no reason to expect any improvement in the poverty of the urban work-force in the foreseeable future.

IV. DEPENDENCY THEORY AND POPULATION GROWTH

Population growth is conspicuously absent from the mechanisms that dependency theory locates causing Third World poverty. Instead, the focus is on the legacy of conquest, the destruction or redirection of the indigenous productive capacity, and current processes that either retard accumulation or expropriate its benefits. In our day of enormous concentrations of international capital, it is argued that the early head start granted Europe and its colonies has become amplified so much that it is no longer possible for Third World capital to successfully compete for significant shares of the world market. Summarizing the structure of peripheral economies with this in view, Amin remarks that in the final analysis:

The distortion toward export activities . . . which is the decisive one, does not result from "inadequacy of the home market"

but from the superior productivity of the center in all fields, which compels the periphery to confine itself to the role of complementary supplier of products for the production of which it possesses a natural advantage: exotic agricultural produce and minerals (Amin, 1976, 200).

As for the <u>appearance</u> of overpopulation, it is explained as a manifestation of the very high rates of unemployment typical of the periphery, rates in turn reflective of the absence of internally connected (articulated) industrial and agricultural accumulation (Ahmed, 1976; Amin, 1972, 1976; De Castro, 1977, 253, 277, 329-27; Gimenez, 1977; Kersten and Wohlmuth, 1973). What Amin says on this question is typical of the literature:

"... stagnation in agriculture, slow industrial growth, and increasing unemployment in the Third World have <u>nothing to do</u> with population growth <u>per se</u>. The political and economic <u>dependency</u> of Third World societies--not <u>overpopulation</u>--is the root of their underdevelopment. This underdevelopment is usually seen in the increasing <u>marginalization</u> of the population (revealed by unemployment, underemployment, etc.) which gives the impression of relative overpopulation whether population growth is high or low (Amin, 1972).

Earlier, I reviewed the logic behind the "classical" neo-Malthusian position advanced by Coale and Hoover (1958) and generally accepted by the followers of the modernization perspective (c.f.--Chapter 2). The major thrust of that argument is that rapid population growth diverts both government and household time and money away from economically productive investments toward essentially consumptive social expenses (e.g.--education). This argument is attacked by dependency theorists on both empirical and theoretical grounds.

Empirically, it has been pointed out that there has never been any clear association found between either population density or rates of population growth and rates of economic growth (Baran, 1957, 239–42; Casanova, 1980; Meilink, 1974). Even researchers sympathetic with the modernization perspective who have tried to test Coale's hypotheses have found that the rates of change in capital formation and savings--variables at the heart of the neo-Malthusian argument--have little impact on changes in economic output/head (Easterlin, 1967; Kuznets, 1966, 1967). Kuznets found that fluctuations in the rate of population growth between 1 and 3 percent could, according to his own calculations, be absorbed by a per capita drop of at most 15% while still retaining a constant increase in the GNP (Kuznets, 1967). The lack of empirical support for the neo-Malthusian position has led an administrator for the International Planned Parenthood Federation to remark that "The argument rests on logic, not experience." (Ahmed, 1976, 227).

But this claim too is itself vulnerable to a separate set of attacks, supported by related data.

It will be recalled that one central mechanism pinpointed by Coale and Hoover as mediating between demographic and economic change was productivity: capital investment/person was assumed to be depressed and diluted by a rate of population growth exceeding the rate of investment. It was feared that this depression of productivity would eventually depress national output and therefore the rate of savings--crippling future investment capacity and rate of growth (Coale and Hoover, 1958, 19-22). But considering the above description of peripheral economies, this concern appears inappropriate.

Both agricultural and industral firms in peripheral <u>and</u> metropolitan economies seek to select a mix of capital with labor so as to minimize costs/unit output and so maximize profits (and savings). This principle may remain true <u>regardless</u> of the rate of growth of the population. Firms are in no way obligated to hire all laborers merely because they are available. A rising volume of potential workers can have only one effect--to depress the price of labor-power vis a' vis the price of machinery (in the absence of countervailing political forces). In fact, we have already seen that there is a large (and growing) pool of unemployed/underemployed laborers in the Third World, yet the investments of the corporations responsible for most of the savings and output there continue to choose a capital-intensive---and highly productive---mix of investments. If we were to assume that a demographically inspired depression in the price of labor occurred and encouraged investments to shift in favor of labor-intensive production, what would be the consequences? Presumably the choice would have been made because it would have lowered unit production costs, while any drop in output/worker could be compensated for by merely hiring more workers, preserving total volume of output. Consequently, the feared effects of a decline in productivity elaborated by Coale and Hoover and their followers would simply not materialize: with output remaining constant, neither profits nor savings need shrink (barring successful organization by workers for higher wages).

Among the peasants of the marginal subsistence and cash-crop sector, capital-intensive investments are rarely economically worthwhile, the scale of operation being so small. Up to a point, increases in the population raises output faster than consumption, actually increasing productivity! (Mamdani, 1972, 85-100). Once this optimum has been passed, the effect on the rate of national savings would be minimal, because the peasantry as a whole accounts for such a small share of national savings (Billsborrow, 1973; Sinha, 1973).

Population, productivity, and the amount and rate of savings cannot be mechanically linked, for all are influenced by a variety of economic, political, and ideological forces--this constitutes the heart of the attack on the neoMalthusian position (Meilink, 1974). It is misleading to conceptualize a nation as one giant, homogeneous productive unit, where investments by both government and private sources are spread equally across all individuals, and where all save and invest equally. In other words, it is a confusion between different units of analysis to compare rates of productivity and investment (which are the collective averages of actions by firms that are heavily biased by the decisions of a few large corporations), with national rates of population growth. The relevant unit of analysis in the first case is the firm, while in the second it is a geographic region. As Baran pointed out nearly a quarter of a century ago, labor is not easily free to move from one area to another, so its relative abundance should be compared to the number of jobs available where the labor force actually is, not the nation as a whole (Baran, 1957, 65-67; 239-42).

A separate problem is the supply of capital. Coale and Hoover, the U.S. A.I.D. and the World Bank have all assumed the supply of capital to be "scarce" and "inflexible" (Coale and Hoover, 1958, 19-25; U.S. A.I.D., 1971, ch. 1; I.B.R.D., 1974). For their arguments about the dilution of capital with rising population to be sensible, it must also be implicitly assumed that the supply of capital is generated internally on the basis of past output. But today, capital is almost completely internationally mobile, so the relevant unit of analysis for the volume of capital is not the nation, but (this time) the capitalist world-economy as a whole (Amin, 1976, 211; De Janvry, 1977; Sivanandan, 1979; Vuskovic, 1980). In any event, dependency theorists believe investment capital to be structurally misapplied and wasted (Amin, 1972, intro.; Gimenez, 1977).

Related to the question of capital is the question of the source of savings. It has been pointed out that "families" in general do not generate savings. Rather, only a tiny fraction composed of the wealthy save and invest in amounts large enough to direct economic changes (Cassen, 1973). Empirically, Sinha suggests that perhaps only 2% of families do most of the saving, while Billsborrow has found in his sample of Third World economies that household savings account for only 40% of total savings, and they arise from the wealthiest 10% (Billsborrow, 1973; Sinha, 1973). (30% of the savings are from corporate sources, and the remaining 30% are governmental (Billsborrow, 1973).) For these wealthy households, their children are irrelevant to their savings, and their personal investment capital is similarly immune to the growth of the population as a whole (Meilink, 1974).

Finally, Coale and his followers have argued that "excessive" population growth raises the dependency ratio to a point where so much government revenue is diverted toward education and health that it impairs government assistance to industrial growth. Starting with Myrdal's <u>Asian Drama</u> (1968), economists have pointed out that government spending is a political decision quite divorced from population size or growth. Typically, such welfare expenditures only account for less than 10% of total government spending, and that amount does not seem to change in response to population changes. Also, many of the educational services that the neo-Malthusians have assumed to be dependent on government outlays are, in fact, privately funded (Billsborrow, 1973; Cassen, 1973; Gimenez, 1977; Meilink, 1974; Sinha, 1973).

These criticisms arise mostly from the work of orthodox economists writing outside of the dependency literature, but they are compatible with and endorsed by dependency theorists (c.f.--Gimenez, 1977; Kersten and Wohlmuth, 1973). The collective message contained by these attacks is that the neoMalthusian position is empirically unsupported because it is grounded in a fundamental misunderstanding of the political and economic forces shaping poverty and development.

HIGH RATES OF FERTILITY AND SEMI-PROLETARIANIZATION: TOWARD A DEPENDENCY THEORY VIEW OF DEMOGRAPHIC CHANGE

Dependency theorists have historically ignored population, except to attack those who use it to explain poverty⁴⁵ (Amin. 1972, 1976; Baran, 1957). But recently this neglect has begun to change (Folbre, 1977; Gimenez, 1977; Kersten and Wohlmuth, 1973; Mamdani, 1972; Wood, 1977). Taking as a starting point Marx's suggestion that "... every special historic mode of production has its own special laws of population, historically valid within its limits alone" (Marx, 1967, vol. 1, 632), some dependency theorists have sought to outline the forces acting on fertility within the capitalist mode of production, focusing on the particular way these forces are expressed in the dependent capitalist societies of the periphery (Gimenez, 1977; Kersten and Wohlmuth, 1973). A basic insight that they share with some conventional demographers (e.g.-Goldscheider, 1971) is that average fertility levels reflect perceived self-interest on the part of parents, and that decisions on childbearing are typically rational reflections of the objective life circumstances of the parents.46 But unlike conventional demographers, the argument is couched in terms of class analysis: different classes and sub-sections of classes will have differing fertility levels depending upon their separate material conditions and ideological influences (Gimenez, 1977).

Dependency theorists reject the concept of "traditional society" to the extent that it implies that not all parts of the world are largely governed by the fluctuating economic and political requirements of the world market (Amin, 1974, intro.). Consequently, they reject as well the belief held by many orthodox demographers that today's fertility levels simply reflect the persistent influence of ancient value systems. They look instead to contemporary circumstances that could be fostering large families.

One such circumstance is the condition of "semi-proletarianization." It will be recalled that many peasants in the periphery today lead a kind of economic double-life: farming to produce cash and/or subsistence crops while on other occasions working as wage-laborers on other farms (Burbach and Flynn, 1980, 148; Leys, 1975, 182–83; Wallerstein, 1979, 119–32). The need for cash, and with it the influence of the world-economy, is felt in even the remotest regions of subsistence production (Meilink, 1974). Most village communities engage in some production of cash crops, tying their income directly to the prevailing world market price for the crops they raise. In one Mexican village, Folbre found that "The amount of population which can be sustained ... is purely a function of the world coffee price" (1977). Because they influence production costs and profit margins, wages too are linked to prices on the world market. It is argued that the need for cash combined with these conditions for obtaining it (where income reflects agricultural productivity) encourages high fertility, because children are the cheapest, most accessible way of raising crop output and/or increasing family wage income. This is thought to be true across a variety of different types of organized production relations (Folbre, 1977; Gimenez, 1977; Mamdani, 1972; Meilink, 1974).

The common denominator for these various combinations of wage-work, cash-crop, and subsistence production is the need for money income. Were this not the case--were <u>all</u> production for local subsistence consumption without the intervening need for cash--then family size could reflect the family labor requirements for immediate consumption. But such communities are few today. Most must purchase at least some of their production inputs as well as medicines and food.⁴⁷ The low level of wages and the small (and highly unpredictable⁴⁸) profit margin for crops must be compensated for by either long hours of wage-labor and/or a high volume of crop output.

In Mamdani's investigation of a village in northern India, he discovered that the farmers there universally valued children as producers in spite of the threat to landholdings posed by fragmentation upon inheritance. As one phrased it:

I have no machinery. Of course, I am worried about the fragmentation of land. But even before I worry about my land being divided up tomorrow, I must worry about making a living on it today. Just look around: no one without sons or brothers to help him farms his land. He rents it out to others with large families. Without sons, there is no living off the land. The more sons you have, the less labor you need to hire and the more savings you can have. If I have enough, maybe we will buy some more land, and then fragmentation will not matter (Mamdani, 1972, 78).

Or, as another one said, "A rich man invests in his machines. We must invest in our children. It's that simple." (Mamdani, 1972, 113). Folbre found the same motives operating in a cash-crop community in Mexico, while Meilink reports several studies confirming the existence of similar forces operating to produce high fertility in Africa, so the phenomenon could hardly be considered idiosyncratic to India (Folbre, 1977; Meilink, 1974). Summarizing her own research, Folbre adds that

The family clearly serves as a web of security and strength within rural areas. Rather than being a source of poverty, large families become a way to combat it. Several sons may work to put a brother through school or set him up in business; then he in turn helps support others . . . Children in rural areas perform a number of economically useful tasks and interfere little with women's work, which is centered in the home (Folbre, 1977). One interesting aspect of these reports is that they argue against the traditional view that there is a conflict between high fertility and high levels of educational aspiration. Mamdani found it common for child labor to co-exist with school attendance, while both he and Folbre reported the sequential support of siblings through advanced degrees (Mamdani, 1972, 95-103, 115-17).

families also beyond The utility of larae seems to extend landowner/producers to include wage-workers, migratory as well as permanent. In Central and Latin America, migrants working for the large international food monopolies commonly travel as families away from their small-holdings (when they own land at all). Wages are usually piecework, so large families can gain some reward from the economies of scale of large size (Burbach and Flynn, 1980, 149-50, 154; Gonzalez and Fernandez, 1979). Unsurprisingly, migrant families in Central America typically have eight children (Burbach and Flynn, 1980, 154).

Wage-laborers in the village that Mamdani studied would contract--as entire families--to work a portion of a wealthier neighbor's land for a share of the crop. Even for hourly wage workers, he found that "A larger family means a greater income during the busy season and higher savings for the slow season." (Mamdani, 1972, 95).

It is frequently the case that a portion of a family's offspring will be expected to travel to a major city to look for work. If they are successful, they will send money home to supplement local family income. For example, this is the expectation that motivates families to support a child through higher education (Mamdani, 1972, 115-117). Given the high rates of urban unemployment, success in this strategy is improbable, but even if only one family in a village is rewarded this way, it can motivate many others to try their luck (Folbre, 1977). Mamdani discovered that parents were aware of and deeply concerned about urban unemployment, but those who owned little or no land felt that they had no choice but to see if one of their children could succeed in the city where others had failed (Mamdani, 1972, 117).

So far, the discussion has been limited to fertility patterns among rural peasants and workers. However, urban conditions can also encourage high rates of fertility (despite the established assumption that urbanization leads to small nuclear families (e.g.--Teitelbaum, 1975)). The high unemployment endemic throughout the cities of the Third World forces families to find employment through any means available. In Brazil, Burbach and Flynn report that

Desperation forces these people to find jobs wherever and however they can--as street vendors, gardeners, construction workers, domestic servants, or as agricultural day laborers on the vast sugar, coffee, and soybean plantations. . . Especially for women, children, and older men--those for whom employment opportunities are most limited--laboring in the fields during harvest season is their best hope for regular work (Burbach and Flynn, 1980, 156).

The relatively lower wages at which children can be hired slightly increases their chances for employment at these jobs. Occasionally, an entire family will be supported solely by its children, who can work the streets with better results than their parents (Gimenez, 1977). The persistence of these conditions--an essential corollary to capital-intensive and disarticulated industrial investment---militate against any reductions of family size in the urban slums.

Most people in the periphery live under some combination of the conditions surveyed here. In each of these, children augment low incomes more than enough to offset their maintenance costs. Were all workers completely proletarianized (dependent solely on wages), and if their wages were high enough to allow children to avoid labor, then fertility levels could be expected to start their long-awaited decline to the levels characteristic of metropolitan countries. On the other hand, if these peasants and workers were entirely free from the pressures of the world market, then it is unlikely that they would have to work as long or produce as much as they now do to provide for their needs. It is precisely their position of suspension <u>between</u> these two extremes--their state of <u>semiproletarianization</u>--that encourages and sustains their high rates of fertility (Gimenez, 1977; Gonzalez and Fernandez, 1979; Kersten and Wohlmuth, 1973).

Semi-proletarianization is itself an essential result of the internally incoherent economic structure peculiar to peripheral capitalism. Complete proletarianization awaits the creation of massive wage employment opportunities. But, as dependency theorists have argued, the historic and contemporary hegemony of metropolitan capital on the world market decisively blocks any such development. The development and current structure of the capitalist world system itself perpetuates poverty <u>and</u> sustains high levels of fertility insofar as it prevents the development of articulated capitalism in the Third World.

Viewed in <u>this</u> fashion, the debate among orthodox demographers over whether we should "wait" for development to lower fertility in the Third World or continue to expand currently funded sterilization programs⁴⁹ instead misses the point (Mellor, 1976; U.S.A.I.D., 1971; I.B.R.D., 1974). As long as the worldeconomy reinforces the world division of labor between nations, we may wait an eternity for meaningful development to occur. Rather, writers within the dependency paradigm appeal to the declining birth-rates in China as evidence for their argument that both population growth <u>and</u> poverty are products of social structure. Within China, both have declined with the collective provision of economic security through the collective distribution of surplus (Ahmed, 1974; Amin, 1972; Folbre, 1977; Kersten and Wohlmuth, 1973; Meilink, 1974). As did Marx, Godwin, and Condorcet, dependency theorists today argue that poverty arises from the social reproduction of inequality, and not the biological reproduction of human beings.

NOTES TO CHAPTER 3

- ¹Throughout this essay, the terms "Third World" and "Periphery" will be used synonymously.
- ²This changed criterion creates the possibility of an "industrialized" economy still being classified as peripheral by virtue of its sectoral disarticulation. Some countries exemplifying this possibility are Brazil, Argentina, Chile, Uruguay, and perhaps Spain and even Canada (Levitt, 1970).
- ³"Extroversion" is used here to call attention to the dependence upon the metropoles for the provision of capital-goods imports, as well as to supply large-scale markets for the sale of exports from the periphery. The import dependence reflects the absence of an autonomous capital-goods sector within many countries of the periphery, while the export dependence reflects the absence of an internal market large enough to sustain the existence of a capital-goods sector even if one were installed (De Janvry, 1977).
- ⁴In particular, the requirement that the IMF loan be conditional on devaluing the local currency acts directly to contract foreign-exchange earnings from exports (Payer, 1971).
- ⁵Different authors have suggested slightly different labels and time-periods for these phases. For example, Dos Santos (1970) suggests that there have been Colonial (?-1850), Financial-Industrial (c. 1850-1945), and Technological-Industrial (1945-present) phases, while my breakdown corresponds most closely to that of Amin (1974, 39-43). The periodization of history always contains an arbitrary quality. My rationale for selecting Amin's chronology is that it most closely reflects the changing nature of capitalism within the metropolitan countries of Europe and the U.S.A., and it is, in turn, <u>their</u> power and <u>their</u> needs which were the main forces shaping the changing forms of dependency in the periphery.
- ⁶The phrase was coined by Fernand Braudel (1972), and has been widely referred to in the writings of Wallerstein (1976, 1979). The literature on the European transition to capitalism is of course massive. For the generalizations provided here, I have relied on Dunn, 1970; Hill, 1961; McNeil, 1963; Palmer, 1950; Wallerstein, 1974, 1976, 1979.
- ⁷The vicious competition between firms, industries, and most spectacularly between entire nations is unimportant here. From a continental perspective, it matters little that English mercantile capitalism defeated its Spanish, Dutch, and French competitors--all victories would have ultimately accrued to Europe as a whole.

- ⁸Although bullion from the Americas helped to spark these events, it was not until the early 18th Century that the products of American and Asian production (food, spices, cotton) began to enter into industrial consumption in a massive way.
- ⁹The absolute misery of the early working classes is well described by Dunn (1970, 106-7, 113).
- ¹⁰Which some have suggested should be elevated to the status of a separate mode of production (e.g.--Amin, 1976, 15-19, 365; Kelly, 1979).
- ¹¹In fact. Amin has argued that the most salient difference between feudalism and the other variants of the tributary mode is that the relationship between the peasants and the land in Europe was a perversion-a peripheral form--of that found elsewhere. Specifically, most peasants around the world possessed the right of eminent domain over their land. In Europe that early right was lost to the lords (an occurrence that Amin asserts is an imminent tendency within the tributary mode, and which was in the process of happening elsewhere). From this step can then more easily arise the ultimate alienation of the peasant producers that historically accompanied capitalism. That this first happened in Europe was to some extent an historical accident (Amin, 1974, 137-42; 1976, 13-22).
- ¹²Computed from data reproduced in Frank (1978, 87).
- ¹³The Aztec empire collapsed in two years; the Incan in four (McNeil, 1964, **628).**
- ¹⁴The profits from sugar production over the 17th and 18th Centuries were enormous. Galeano remarks that its value was so high that "it was sold in pharmacies, weighed out by the gram" (Galeano, 1973, 71). (Although Frank reminds us that sugar profits fluctuated with the fortunes of gold and silver production, insofar as those metals determined the price (hence profits) of commodities (Frank, 1978, 120-21).) Accordingly, the Portuguese lost their monopoly over slaves and sugar to the more powerful Dutch, English, and French.

Once begun, the effect of sugar plantations on the Caribbean was as destructive as it was profitable. In McNeil's words:

The Eighteenth Century economic importance of these minute specks of land is amazing. As late as 1773, official records showed that British trade with the West Indies was more valuable than trade with the mainland colonies of North America . . . sugar moved through the chain of Caribbean islands like a golden plague, leaving behind exhausted soil, impoverished populations, and seriously disjointed societies (McNeil, 1963, 718n).

- ¹⁵Another incentive for the British to abolish the slave trade was the resulting destruction it could bring to French profits (Wallerstein, 1976b).
- ¹⁶Inside India, manufactures remained competitive with Britain until the latter's invasion, whereupon India's proto-industrial capacity was destroyed with single-minded efficiency and military force (Baran, 1957; Frank, 1978, esp. ch. 4). Even so, India might have been able to rebuild over the following century had it not been for England's continued oppression.
- ¹⁷Today, the Third World is the site of advanced production techniques. However, they remain owned and/or controlled by foreign investors, and are not the product of indigenous research (Hveem, 1973).
- ¹⁸In an effort to maximize the inflow of surplus from its holdings in the New World, Spain had allowed direct trade only between her colonies there and herself, barring trade between the colonies themselves and direct exchange between them and Spain's metropolitan competitors: France and England (Frank, 1978, 182-84).
- ¹⁹The only major exception is Japan, whose industrialization lagged behind that of the established metropoles, but was able to achieve industrial articulation despite its late start precisely because of its determination to protect its own industry from the commercial incursions from Europe and the U.S.A. Baran's discussion of the Japanese case is quite specific on this point (1957, 151-61).
- ²⁰Throughout the history of capital, the widespread implementation of technical improvements that have revolutionized labor productivity have occurred during periods of industrial re-organization that resulted in a higher level of industrial concentration (Mandel, 1975, ch. 4). In the late 19th Century this was especially true, in part because of the relative expense of the new equipment and processes. An excellent portrait of this process as it affected the steel industry can be found in Stone (1974).
- ²¹Slavery was abolished in the British colonies in the 1830s, but it lingered on elsewhere for a generation beyond that time (e.g.-among the Arabs, within the U.S.).
- ²²In Chile, for example, the production of copper passed effectively from Chilean to British hands between 1880 and 1890. In the first of these years, total British capital in Chile amounted to 7.5 million pounds, while a decade later it had more than tripled to 24 million. In the same generation, the Chilean-owned merchant fleet fell from 276 to only 75 vessels (Mandel, 1975, 57).

- ²³Just as dependency theory is largely informed by Marxism, so the economic aspects of modernization theory are compatible with neo-classical economic theory.
- ²⁴Mexico might be a somewhat extreme case with only 7% of its farmers owning 70% of its irigation plant, but even the more widespread use of tube-wells in south Asia is considered by many peasants to be a major expense (Mamdani, 1972, 61; Wellhausen, 1976).
- ²⁵Wellhausen (1976) reports that the use of fertilizer between 1945 and 1970--when complemented by pesticides and the use of high-yield crop varieties-paid out at a ratio of 6-to-1 at prices then prevailing (before the rise in fertilizer prices of the early 70s).
- ²⁶The precise statistics vary from country to country. For Mexico, the estimated number of landless has risen ten times since 1950, to now equal well over one-half of the entire rural population (Burbach and Flynn, 1980, In El Salvador, the number of farms less than one hectare has 147). doubled since then, while the number of people with holdings that small added to those with no land at all has now reached 75% of the total population (in 1975), up from 53% in 1961 (Burbach and Flynn, 1980, 99). In Brazil, the size of the average "minifundio" under 10 hectares has dropped from 4 to 2.7 hectares between 1940 and 1970 (ibid.). Meanwhile, across the planet, the number of rural households officially listed as being below the poverty line inside of India that were headed by cultivators declined by nearly 20% between 1960-61 and 1970-71 to only 30% of that population, while at the same time those poor households headed by landless agricultural laborers rose from 22.5% to 40.5% (Perelman, 1977, 149). Leys (1975, 183-86) provides data for Kenya indicating that the polarization process is occurring there as well.
- ²⁷An updated (and grimmer) account of the conditions and wages of agricultural workers in Kenya is offered by Leitner (1976).
- ²⁸Extensive theoretical analyses of the phenomena can be found in Amin (1974, 70-80: 1976, 163-71).

Mandel's otherwise clear and thorough discussion in Chapter 11 of Late Capitalism is marred by his confusion between unequal trade and unequal <u>exchange</u>-the latter being a different phenomenon first articulated by Emmanuel (1972). Although Mandel sets out to explain the latter, he actually succeeds indissecting the mechanism of the former--an error pointed out by De Janvry and Kramer (1979).

- ²⁹In India, food demand was found to be a clear result of employment. The bottom 20% of workers spent 60% of their "additions to income" on food, and 85% on agricultural products in general. In contrast, the top 10% of income receivers spend only 2% on grain (Mellor, 1976).

- ³⁰Agricultural laborers would not be able to feed themselves with such luxurious abandon on their own. Although banana workers are the most highly paid in Central America, for example, even among them, 17% aren't paid enough to meet the nutritional needs of a family of four, yet a typical family size is ten (Burbach and Flynn, 1980, 154–59).
- ³¹An interesting analysis of the background to and current tendencies of the high degree of international concentration and centralization of capital today can be found inMandel (1975, ch. 10). In it and Chapters 7 and 8 he seeks to demonstrate why development planning even within the metropoles is rendered largely ineffective by the contradictory needs of state planning and corporate investment.
- ³²Some major American producers of fertilizers are Allied Chemical, Beker Industries, International Minerals and Chemicals, Monsanto, W.R. Grace, and Williams Companies (Burbach and Flynn, 1980, 111).
- ³³The remarkably devious character of some of these methods of profit repatriation is exemplified by some of the cases studied by Barnet and Muller (1974).
- ³⁴Price manipulation in the international market is a widespread practice. Mass (1976, 117-24) documents some particularly sordid examples of global food price-fixing through stock exchange and futures speculation, reminding us that sudden fluctuations in price are often independent of crop yields, hence not dropping in resonse to good harvests. Since specialization in the export of agricultural products designed for the markets of the metropolitan countries has hampered the production of food for domestic consumption in the periphery, increasing numbers of the Third World's people are (ironically) becoming dependent upon the export of grain from the U.S. (<u>NACLA</u>, 1975, 1976). Sadly, it is that very grain which is the frequent target of corporate price-fixing.
- ³⁵When India attempted to extricate herself from these spiraling costs by establishing an independent fertilizer production capacity, she was blackmailed into abandoning these plans by U.S. pressure, which took the form of threatening the continuity of U.S. grain shipments along with preventing the World Bank (in which the U.S. has a majority voice) from agreeing to loans then being negotiated (Knowles, 1973; Perelman, 1977, 170-72).

These coercive measures were perhaps atypically extreme. Other countries (Mexico, Brazil) have successfully built or purchased local fertilizer production facilities; however, as Burbach and Flynn have noted:

... in setting up a new fertilizer facility, the governments are almost always dependent on international financing from such organizations as the World Bank and (in Latin America) the Inter-American Development Bank, and they rely on the technology produced by such foreign construction firms as M.W. Kellog and Fluor (1980, 115). 36 See for example the NACLA 1976 report on the global operations of Del Monte, in particular their Mexican and Philippine branches. Burbach and Flynn (1980) cite others, while Beckford's (1972) comprehensive survey of plantation societies contains two appendices that have thorough, case-bycase documentation of different marketing arrangements between the "agribusiness" multinationals and the actual peasant producers for a number of societies where the companies lack formal ownership but still retain control.

³⁷Quotation is from "Peasant Economics and Capitalist Agro-Industrial Development," published in 1977 by the Economics Department of the Catholic University of Lima, Peru, and translated and presented by Burbach and Flynn (1980, 124-25).

- ³⁸But this phenomenon is certainly not limited to Latin America. See, for example, the description provided by Weeks (1975, 95 in Oxaal, 1975), of the extraordinary concentration of both population and social services in Nairobi, Kenya.
- ³⁹Writing recently in <u>Scientific</u> <u>American</u>, Tanzanian economists complained that:

The foreign exchange required to purchase the technical inputs to the country's ambitious development plans must be secured on disadvantageous trading terms with the industrial countries. In 1978, exports principally of coffee and cotton into their soft world markets equaled 12 percent of the GNP, whereas imports principally of producer's and capital goods at their inflexibly administered prices came to 27% of the GNP (Mabele, et al., 1980).

⁴⁰For most of the post-war period, the bulk of U.S. direct investment was in European manufacturing, and the remaining peripheral investment (mostly Latin American) was in agriculture and mining. Hence the stock of overall investment as revealed by U.S. Government statistics has consistently shown (and continues to show) that most investments are in Europe, and sectoral breakdowns of global investment patterns demonstrate that manufacturing has generally led other types of investment. What makes the current changes significant is the shift away from that pattern in the flows of current investment, as revealed in Palloix (1977), U.S. Senate (1975), and Vuskovic (1980). Investments in the periphery, in manufacturing, now (since around 1970) are drawing an unprecedented percentage of investment capital.

⁴¹Barnet and Muller, using figures gathered in 1969, note that:

Of the 717 new manufacturing subsidiaries established in Latin America by the top 187 U.S.-based global corporations, 331, or 46 percent, were established by the buying out of existing local firms. The figure would have been higher, Business Latin America observes, except for the "scarcity of local firms" remaining in particular industries (1974, 139).

These figures are corroborated for Mexico and Brazil in the period 1960-72 by a U.S. Senate report, which found that 43% of U.S. multinational affiliates were acquired by buying out locally profitable national firms in the former, while the same was true for 33% of the Brazilian acquisitions. Furthermore, these purchases were almost entirely (80%) financed by the use of local, not imported, funds (U.S. Senate, 1975, 76, 146-49).

- ⁴²In the poorest countries, the only agent capable of mustering sufficient resources for industrial investment is the state (Amin, 1976, 343-51). But in those countries wealthy enough to provide a market, multinational corporations tend to dominate the most dynamic sectors. See, for example, (for India) Krishna, 1980; (Kenya) Leys, 1975; Weeks, 1974; (Brazil) U.S. Senate, 1975; (Mexico) Casanova, 1980; U.S. Senate, 1975.
- 43 We may for the time being essentially dismiss the middle-term prospects for industrial development available to countries in the last category.
- ⁴⁴This distortion toward export is relative to the more internally directed production activities of the metropolitan economies, and is far less true of the industrial sector than it is for the agricultural sector. While much of the agricultural production is often destined for export, a report to the U.S. Senate found that, at least in the industrially advanced economies of Mexico and Brazil, only 5% of the sales of multinational affiliates in those countries was exported (U.S. Senate, 1975, 73-80, 125-39). However, for Latin America as a whole, international trade can often reach 10 or even 20% of the GNP (Johnson in Cockcroft, 1972, 77).
- ⁴⁵One early exception to this historic disinterest was De Castro (1977), who argued in the 1950s that malnutrition encouraged a biological tendency toward increased fecundity in all organisms (pp. 128-34, 281-85). This was operative apart from--but complementary to--social and economic pressures to have children (pp. 286-88). This biological claim remains controversial. For a counter-argument, see Frisch (1978).
- ⁴⁶This opinion can be contrasted with those who have assumed or argued that fertility levels are primarily determined by received moral tradition, even when that tradition is thought to contradict the "true" self-interest of the parents (Cutright, et al., 1978; Enke, 1966; Nerlove, 1974; Teitelbaum, 1975).
- ⁴⁷The necessity of purchasing food arises from the previously described shift from food production to cash-crop production (i.e.--coffee, sisal, etc.) for sale abroad.
- 48 Folbre (1977) points out that there is a time-lag of 5 years between the planting of a coffee crop and its maturation. Year-to-year production volumes, combined with price decisions by General Foods and other coffee monopolies, can create wild price fluctuations. Hence one hectare's production can gross, on the same volume of output, anywhere from \$2500 to \$4000 in one year.

⁴⁹ The extent (and occasionally near-genocidal "success") of these programs, mainly funded by the U.S. A.I.D. and the Rockefeller Foundation, is thoroughly documented by Mass, 1976.

CHAPTER 4

STATISTICAL METHODS EMPLOYED

I. PATH ANALYSIS

As previously mentioned, modernization and dependency theories offer contrasting mechanisms linking demographic and economic behavior. In an attempt to assess the relative accuracy of these different mechanisms, path analysis is used to test the correspondence between the causal chains implied by the theories and those actually found within the available data¹ (Asher, 1976; Blalock, 1964; Kenny, 1979; Kmenta, 1971, ch.13).

Path analysis is a statistical technique that allows one to assess the relative causal importance of "independent" variables on one or more "dependent" variables (Asher, 1976, 35; Kenny, 1979, ch.4). As with all empirical techniques, authoritative proof of "true" causality is impossible (Blalock, 1964, 11-14, 18-21). But path analysis is one of the best statistical techniques currently available for distinguishing apparently genuine from spurious covariation between variables. Covariation alone cannot establish causality, but when combined with the existence of temporal sequencing between the two variables, and a reasonable effort by the researcher to exclude other possible (and measurable) causes of the observed covariation, then the assertion of causality becomes far more reasonable (Asher, 1976, 11-12). The last condition is clearly the most difficult to meet: one can <u>never</u> be certain that apparent covariation is not spuriously due to some third common cause outside of the

127

analysis. But, as Asher (1976) points out, "If we are not willing at some point to proceed on an 'as if' basis--as if confounding variables presented no problem-then we will be paralyzed in our efforts at data analysis" (p. 12) (see also Blalock, 1964, 46-49). Even without the definitive assurance of causality, "causal" models can still allow us to discard hypotheses that are clearly inconsistent with the data in favor of those that are more consistent (Blalock, 1964, 18-21).

Path analysis is a particular application of multiple regression and, as its name implies, involves the measurement and evaluation of presumed causal "paths" connecting the variables that have been specified by theory. The chain of connections that is derived from the theory one is testing is first laid out graphically, as can be seen by the hypothetical path diagram in Figure 1:



Figure 1.

A hypothetical path diagram.

In this example, variable X_4 is asserted to be caused both directly by variables X_1 , X_2 , and X_3 , and indirectly by X_2 (via X_3) and X_1 (via X_2 and X_3 and via X_2 and X_3 together). Conventional formulas of multiple regression are then used to compute the numerical values of interest from the matrix of correlations between the variables. The two types of values of the greatest interest that result from this procedure are the standardized path coefficients (or Beta weights) and the coefficient of determination (equal to the square of the multiple correlation coefficient (\mathbb{R}^2)).²

 R^2 represents the degree of consistency between the variation of the dependent variable and that of the independent variable(s), and is usually interpreted as representing how much of the variation of the dependent variable is "explained" by the independent variable(s) (Neter and Wasserman, 1974, 89-90). The closer R^2 approaches I ("perfect" explanation), the greater the empirical support for the theoretical power of the prediction equation.³ But regardless of the theoretical relevance of the choice of independent variables, the R^2 will typically rise as the number of independent variables rises (although not by a constant amount). For example, in the hypothetical path diagram illustrated in Figure I, we would expect the R^2 associated with X_4 to be higher (with three predictors) than the R^2s associated with either X_2 or X_3 (with one and two predictors, respectively). Because of this, an effort was made in the actual models used below to ensure (where possible) that the final dependent variables in each version had an equal number of predictors.

The path coefficients, or Beta weights, are the computed numerical values associated with the individual paths (arrows). The formula used to compute their value is similar to that for the partial correlation coefficient (Kenny, 1979, ch.4). Technically, a Beta weight of, say, .5 for the path between X_2 and X_4 in Figure I above means that if a given case is one standard deviation above the mean for the value of X_2 , while its values for X_1 and X_3 remain at the mean for those variables, then that case will have a value of .5 of one standard deviation above the mean on X_4 (Asher, 1976, 45; Kenny, 1979, 47). Intuitively, this allows us to view the relative impact, positive or negative, of each of the independent variables on the dependent variable <u>separately</u> and <u>independent of</u> each of the other independent variables. The greater the absolute value of the Beta, the greater the degree of independent covariation between the dependent variable and that particular independent variable. Put differently, the greater the Beta, the larger the (presumed) causal impact of the independent variable associated with it (Asher, 1976, 45).

One advantage that path analysis has over conventional uses of multiple regression is that it allows us to assess the magnitude and direction of <u>indirect</u> causal paths (Asher, 1976, 41-44). For example, referring once again to Figure 1, ordinary multiple regression will provide us with the value for the direct causal arrow between X_2 and X_4 . But path analysis allows us to compute the <u>indirect</u> effect of X_2 on X_4 via X_3 as well, by multiplying the Beta weight for the arrow from X_2 to X_3 by the Beta weight from X_3 to X_4 . In this fashion we may discover that the resulting value for the indirect path is actually greater and in the opposite direction than the direct path. Without this information we would have drawn the wrong conclusions about the effects of X_2 on X_4 .

Any theory that postulates causal connections between variables can be cast into the form of a path model/diagram. Each hypothesized causal connection between the variables will then appear in the form of an arrow from one to another, with a positive or negative sign placed near it to indicate the expected direction of the influence. Once the path coefficients have been computed, their actual values can then be compared to the predicted ones. At the same time, the R² of each of the variables appearing at the end of one or a set of arrows can be examined to assess the overall causal effect of all of the independent variables used to predict the dependent variable in question.

For the models examined below, three criteria are used to evaluate and compare them:

I. To what extent do the path coefficients correspond (in both sign and magnitude) to those predicted by the theories?

2. Where they differ from the predictions, can that difference be explained in a way consistent with the theories?

3. Which of the competing models, with a similar number of predictors, produces the highest R^2 for the (same) dependent variable?

In the final analysis, the evaluation process is a subjective one. A model producing a lower R^2 may still be preferable to its competitor if the majority of the path coefficients are harmonious with the theoretical expectations. Or, the reverse may be true, depending upon what criteria are considered most important. An attempt will be made here to place equal importance on all three criteria listed.

II. DERIVATON OF THE MODELS USED

Insofar as modernization and dependency theories reflect clashing worldviews--or different ways of conceptualizing the totality of political/economic reality--path models faithfully delineating their outlooks would be impossibly complex. The limitations of both the data and the method⁴ require that only those available variables central to the analysis be included.

Four basic models are derived, one of them having two versions (totaling 5 overall). For modernization theory, there were two models, one reflecting the perspective of social-psychological modernization and its effect on fertility (e.g.—Anderson, 1975; Chodak, 1973, 150; Horowitz, 1972; Weiner, 1981), the other concentrating on the hypothesis of economic modernization and its effect on fertility (Chodak, 1973, 210-12; Lewis, 1955, 330-50; Rostow, 1963). Two variants of a third and related model were also tested, representing the central neo-Malthusian claims that rates of fertility suppress the Gross National Product and its rate of growth, respectively (Coale and Hoover, 1958; Hawkins, 1970; I.B.R.D., 1974; U.S. A.I.D., 1971). One model was derived from dependency theory. But computational problems arising from excessive multicollinearity⁵ forced the omission of one of the paths specified by theory. All of the models were computed both with and without GNP per capita as a control variable.

MODEL I: SOCIAL-PSYCHOLOGICAL MODERNIZATION AND FERTILITY

It will be recalled that the perspective of social-psychological modernization emphasized the causal importance of changes in values, goals, and the acceptable means of achieving those goals to the success of the modernization process. Its emphasis upon the importance of these attitudinal changes for initiating and assisting the economic and political changes accompanying modernization/development makes it a separate wing of the modernization school, distinct from the viewpoint that favors the causal priority of economic growth.

Recognizing this conceptual distinction, Model I was developed with a social-psychological emphasis in mind. It displays the idea that attitudinal
changes (regardless of source) precede and cause the economic changes identified by most demographers as accompanying lowered rates of fertility. Specifically, the model asserts that increases in popular education, political involvement, and mass communication will reflect and promote the value-system changes considered central to social-psychological modernization (e.g.--higher identification with the national political and scientific institutions at the expense of traditional allegiances to local authorities). Increases in these variables are expected to correspond to increases in capital accumulation, industrialization, and urbanization. These economic and geographic changes are, in turn, expected to combine with the attitudinal ones to reduce birth rates. The actual variables⁶ selected to represent these theoretical variables, and their expected influences upon each other (the positive or negative signs next to the arrows) are shown graphically as the path model in Figure 2.





MODEL II: ECONOMIC MODERNIZATION AND FERTILITY

The economic modernization model represents the other wing of the modernization school, those placing causal priority on economic growth as the major engine of development. Within this perspective, capital accumulation (represented in these models as capital formation as a percentage of GNP) is promoted by the sale of natural resources and the concomitant growth of industry and manufacturing. These economic variables then collectively foster the development of cities and an educated urban culture, conditions conducive to lowered fertility. Simultaneously, the growth of industrial and manufacturing employment are expected to reduce the economic incentives for children, while agricultural employment is expected to sustain fertility. Again, these hypotheses are laid out graphically in Figure 3.





MODELS III A and B: FERTILITY AS A BRAKE ON ECONOMIC OUTPUT AND GROWTH

I have argued earlier⁷ that the modernization perspective at least tacitly accepts the neo-Malthusian explanation for poverty in the Third World. A faithful rendering of this acceptance within the modernization path models would have required that the flow of causation turn back upon itself: fertility, the final dependent variable in each of the modernization models featured above, would have had to have become itself an independent variable which both directly and indirectly suppressed economic growth. This circularity of causation can be handled within the framework of path analysis,⁸ but the mathematics are sufficiently complex that I did not apply them here (Asher, 1976, 49-60; Kenny, 1979, ch.6). Instead, separate models were constructed to test the neo-Malthusian analysis, one using gross national product as the dependent variable (as a measure of economic output), the other substituting the growth of the gross national product as the final dependent variable. Otherwise, the two models are identical.

Each model incorporates the central assertions of the neo-Malthusian position. Higher rates of fertility are represented as retarding overall output and its growth in several ways:

I. Directly, insofar as children are thought to divert family income away from savings for the purchase of consumer durables produced by industry (hence depressing industrial growth and the investment of capital into industrial expansion).

2. Indirectly, by

(a) channelling capital away from investment and into educational spending;

(b) the above diminution of investment-seeking capital encouraging a rise in the interest rates, in turn discouraging borrowing for the purposes of expanded infrastructure, plants, and equipment.

The expectations of Models III-A and III-B are represented by Figures 4 and

5.



MODEL M-A: FERTILITY AS A DRAKE ON ECONOMIC OUTPUT (THEORETICAL EXPECTATIONS)

FICURE 4.



.

MODEL M-B: FERTILITY AS A BRAKE ON ECONOMIC GROWTH (THEORETICAL EXPECTATIONS)

FIGURE 5.

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MODEL IV: THE EFFECTS OF DEPENDENCY UPON FERTILITY

A central claim of dependency theory reviewed in Chapter 3 is not that the dependent condition always blocks economic growth <u>per se</u>, but that when growth does occur it is a response to external conditions, and its benefits are distributed in an unequal way within the economy. Hence the wealth accrued from dependent development is thought to enrich the privileged preserves of the elite while largely bypassing the bulk of the population. It follows from these assertions that dependent economies will have greater inequalities of income and lower material conditions of life for the general population than would otherwise similar non-dependent economies. An important corollary for demography is that, to the extent the family production of children is a defensive response to a low standard of living, then the condition of dependency should foster high levels of fertility (at least indirectly via inequality and the material standard of living).

Dependency theory makes no particular claim about the condition of dependence and the relative weights of agriculture and industry in the economy, the state of dependence being irrelevant to the production of particular commodities. But because the conditions of life within these two sectors are so different, they are included as control variables. For example, an economy primarily rooted in agriculture could be expected to have higher rates of fertility than an industrial one. Similarly, levels of income inequality have also been found to rise with the gross national product (Paukert, 1973), as do levels of industrialization. Therefore, one should expect inequality to be somewhat greater within nations whose industrial output is larger, another reason for including agriculture and industry as controls.

We have seen that the concept of dependency itself is complex, integrating

within it a long chain of historical causation leading to manifestations in the social, political, and cultural realms as well as the economic. Insofar as many of these are currently unmeasured and perhaps potentially unmeasurable (e.g.-- domination, exploitation), dependency cannot be simply measured by available data. The dependency model incorporates two crude indicators of conditions associated with dependency: foreign control (represented by repatriated profits), and sectoral disarticulation (sectoral inequality of income).

The model is presented in Figure 6.





III. SPECIFICATION OF VARIABLES ACTUALLY USED

The data used here were largely (but not solely) drawn from Taylor and Hudson (1972), the United Nations (1969), and the International Monetary Fund (IMF) (1968, 1973).⁹ The year for which they were collected was at or near 1965. The exception to this was fertility, which was taken for 1976 in Models I, II, and IV. Because it appeared there as a dependent variable, a lag was appropriate to allow time for the conditions measured in 1965 to manifest themselves in wide-scale decisions on family size. But when fertility appeared as a causal variable (Models III A and B), its 1965 value was chosen instead.

The initial list of 136 countries was drawn from Taylor and Hudson (1972, 10) whose criteria for inclusion were that the countries had at least 1 million inhabitants by 1965, and were members of the United Nations by 1968.¹⁰ This initial list was reduced by the omission of states that were either not formally independent in 1965 (e.g.--Angola), or were island city-states (e.g.--Singapore), resulting in a total list of 118 cases.

The hypotheses developed by modernization and dependency theorists that are of greatest relevance to this thesis are concentrated on the Third World/periphery, and in particular on those with a market economy. Accordingly omitted from the final list are all centrally planned and/or core or semiperiphery¹¹ countries, yielding a final list of 78 Third World/dependent capitalist countries.

In their search for an objective criterion for distinguishing between countries, other researchers who have wanted to focus on only the Third World have established an arbitrary limit to the value of the GNP per capita, omitting all countries above that value (typically 500 \$ U.S. in 1965) (Bornschier, et al.,

1978; Chase-Dunn, 1975; Kentor, 1981; Rubinson, 1976). But, as noted above, ¹² the concept of dependency (and, to a lesser extent, those of "traditional" and "developing" and/or "underdeveloped") is analytically distinct from wealth. A country may be poor and still independent (e.g.--China), or, conversely, wealthier but still somewhat dependent (e.g.--Uruguay, Portugal). These considerations suggested the need for alternative criteria for determining the status (core, semi-periphery, periphery) and economic type (capitalist, centrally planned) of the 118 cases. Accordingly, I generated a code for each of the countries about which I had sufficient information to assess their status and type. This subjectively-generated list was then cross-checked against a similar list generated by a colleague, ¹³ where the inconsistent listings (2.5% of the total) were reconciled. The reconciled list was then checked against a similar list of countries split into developed and less developed produced by the IMF (1973, back cover), where inconsistent listings were found in only 4% of the cases. Because the level of agreement between these three lists was so high, it was felt that the final coding scheme was adequate for the analysis, and so this code provided the criterion for selecting the final list of 78 dependent capitalist countries.¹⁴

In Table I below, the concepts drawn from the competing theories are paired with variables chosen to represent them along with their definitions. From these it will be apparent that the degree of correspondence between the concepts and their indicators is less than ideal. In all cases, the guiding rationale for the selection of variables was that they came the closest of those available to matching the relevant concepts. Where no variable could be found to match a relevant concept (e.g.--productivity, wages), that concept was dropped. Where the correspondence was more tenuous but still plausible, a brief explanation for its adoption is located after the definition, while the pitfalls of its use are also noted.

Finally, some of the variables are logged. The choice of whether or not to log a variable was guided by the assumption, required by regression analysis, that the relationships between the variables be linear (Neter and Wasserman, 1974, ch.2). When they are not related linearly, linearity can be approximated by logging some or all of them (Blalock, 1972, ch.18; Neter and Wasserman, 1974, 123-28). The criterion for determining whether or not to transform a given variable was the absolute magnitude of the coefficient of determination between a given dependent variable and its predictor(s). The equation producing the largest R^2 is necessarily closer to being linear than the competing versions of the same equation containing different combinations of logged and unlogged variables (Blalock, 1972, ch.18). (This fact will be helpful if recalled while examining Models III A and B in the next chapter, because different subsets of the variables were logged, resulting in different values for the path coefficients between variables that superficially appear identical.) Whether and when a variable was logged is indicated in the table below.

	TABLE	I: VARIABLES, CONCE	PTUAL U	SE, AND	SPECIFIC DEFINITIONS
	Variable Used	Conceptual Meaning	Found In Model	Logged	Specific Definition
<u>-</u>	Newspaper circulation	Mass communication	_		Number of copies of general news publication appearing at least 4 times/week per 1000 people.
5.	Literacy	Scale of minimum educational attainment	_=		Percentage of the total population 15 years and older that can both read and write (generally). <u>Rationale</u> : obtainable for most cases. <u>Disadvantage</u> : does not indicate degree of competence.
ň	School enrollment ratio	Degree of mass parti- cipation in education	_		Number of people attending primary and secondary school as a % of total population aged 5-19 years. <u>Rationale</u> : indicates availability of and willingness to attend school, hence the potential diffusion of non-traditional ideology. <u>Disadvantage</u> : school attendance does not indicate content or volume of information transferred.

5 F	Variable Used Variable Used Educational spending as % of GNP Democracy rating	CEPTUAL USE, AND SPE Conceptual Meaning Amount of national wealth given to education Political participation, mass mobilization	Found Found III-A III-B III-B III-A	5, continued Public expenditure by all levels of government on education at all levels as a % of gross national product. Countries ranked by the ability of the population to participate in or oppose government. Rankings were based upon updated versions of 30 variables relating to political and press freedom originally made by Banks and Textor (1963). In both original and updated versions, rankings were derived from both political events data (newspaper
•	Physical quality of life index	Degree of popular health, education, and general economic security	2	accounts) and subjective judgment of coders (Dahl, 1971, 231-45). Country's average rank derived from its three rankings for literacy, infant mortality, and life expectancy. <u>Rationale</u> : More accurately reflects popular welfare than any monetary measure (i.e GNP/capita, wages).

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Z	DLE 1: VARIABLES, CUN	LEPIUAL USE, AND SPE			S, continued
	Variable Used	Conceptual Meaning	Found In Model	Logged	Specific Definition
	Crude birth rate	Fertility	₽-B- ===-		Number of live births per 1000 people. Disadvantage: Does not include infants born dead, thereby depressing figures for births.
യ്	Gross national product per capita	Wealth	AII	L	<u>Rationale</u> : The addition of GNP/capita as a control variable in all of the models was designed to reduce the chance of spurious correlations between variables due merely to wealth.
6	Industry as a % of gross domestic product	Level of industrialization	-=====================================		Industrial contribution to the gross domestic product, computed as the sum of industrial contributions to the compensation of employees, interest, net rent, profit, and consumption of fixed capital. <u>Disadvantage</u> : Does not distinguish between foreign and locally owned industry, nor between production of capital goods and goods for final consumption.

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	Variable Used	Conceptual Meaning	Found In Model	Logged	Specific Definition
-0	Capital formation as a % of gross national product	Level of accumulated capital	- B - E - E		Gross fixed domestic capital formation refers to money spent on capital goods, and includes spending for new plants and equipment, new houses, related fees for transportation, installation, and engineering, architectural and legal services. Those included as spending money for these items are businesses, general government, and individuals (if purchasing newly-built dwelling). <u>Rationale</u> : Excepting the poorest countries, this figure will be affected the most by corporate investments, in turn reflecting both past and anticipated profits (capital accumulation). <u>Disadvantage</u> : Omits fluid and also exported capital, both of which could account for a significant fraction of accumulated capital. Where government is not the main economic actor, its inclusion along with that of non- profit institutions does not reflect capital directly accumulated by private enterprise, but only capital indirectly circulated into government hands.

TABLE 1: VARIABLES, CONCEPTUAL USE, AND SPECIFIC DEFINITIONS, continued

	Variable Used	Conceptual Meaning	Found In Model	Logged	Specific Definition
≟	Labor in mining and manufacturing as a % of male labor force	Level of development of mineral resources and a second measure of industrialization	=		Labor force is defined as all people beyond some (variable) minimum age who are not students, retired, or wholly dependent on others. Use only of its male component makes international comparison easier, because women are inconsistently counted. Rationale: Measures resource exploitation, one of the requisites for economic growth proposed by Lewis (1955). Disadvantage: Impossible to disaggregate mining from manufacture.
12.	Labor in agriculture as a % of population	Extent of employ- ment in agriculture	=		Labor force defined as above. Both agri- culture and mining and manufacture conform to the international standard industrial classification. ^a
13.	Exports in millions \$	Value of external sales	=		
14.	Urbanization	Urbanization	_=		Percentage of the population living in cities of 100,000 or more in 1960, cities being defined as standard metropolitan statistical areas.

TABLE I: VARIABLES, CONCEPTUAL USE, AND SPECIFIC DEFINITIONS, continued

TAB	LE I: VARIABLES, CON	CEPTUAL USE, AND SPE	ECIFIC D		S, continued
	Variable Used	Canceptual Meaning	Found In Model	lf Logged	Specific Definition
<u>-</u> +	(continued)				<u>Disadvantage</u> : Date is 5 years before other data.
15.	Interest rate	Indicates availability and cost of borrowed capital	III-A III-B		Discount rate on interest computed as the average across the 4 quarters for 1965. Rationale: Inserted to test the neo-Malthusian claim that high fertility consumes capital. Interest rates should be inversely related to availability of capital. Disadvantage: The availability of capital and the interest rate are separately and jointly influenced by government policy and net international transfers. Fluctuations cannot be traced to any one factor.
16.	Gross national product	Total material output	A-III	_	<u>Disadvantage</u> : Omits non-monetary and black market exchanges, thereby underestimating true volume of economic activity.
17.	Growth of gross national product, 1960-1965	Rate of national accumulation	III-B		Disadvantage: Same as for GNP. Also, not available for years following the measure of fertility (1965) used in Model III-B.

R I	LE I: VARIABLES, CUN	ICEPTUAL USE, AND SPI			b, continued
	Variable Used	Conceptual Meaning	Found In Model	lf Logged	Specific Definition
18.	Income inequality	Income inequality	≥		Gini coefficient of income distribution. See Jain (1975).
<u>6</u>	Repatriated profits as a % of GNP	Foreign control and exploitation	2		Debits an investment income divided by GNP. Debits are intended to take account of income earned by foreign nationals, enterprises, or their agents (IMF, 1961, 84). IMF (1968, 12) defines debits to include "interest and dividends earned from foreign subsidiaries, the undistributed net profits of subsidiaries, and the total net profits of subsidiaries, and the total net profits of branches." Rationale: Profits may be expected to generally correspond to corporate power versus both workers and government. Generally used by quantitative dependency theorists (c.fBornschier, et al., 1978; Chase- Dunn, 1975; Kentor, 1981; Rubinson, 1976). Disadvantages: Understates real value to the extent that profits are hidden within royalties, service fees, and transfer pricing mechanisms

) :			· · · · · · · · · · · · · · · · · · ·	5	
	Variable Used	Canceptual Meaning	Found In Model	Logged	Specific Definition
6	(continued)				used by parent firms against their branches and affiliates to evade taxes and publicity (Barnet and Muller, 1974, ch. 7; Hveem, 1973; U.S. Senate, 1975). Also, measuring profits for only one year introduces random fluctuations from conditions unique to that year (e.gcommodity price levels).
20.	Sectoral income inequality	Disarticulation	2		Gini coefficient of income inequality between the major economic sectors (not households). The income of each sector, defined as that sector's contribution to the gross domestic product, is divided by the number of people employed within that sector. A gini index of inequality is then computed for resulting sector values. Sectors are defined conforming to the international standard industrial classification.9, b Rationale: The concept of disarticulation as used here is the same as that advanced by Amin (1974, 1976). It refers to the extent that a diven sector blus from and sells to other

TABLE 1: VARIABLES, CONCEPTUAL USE, AND SPECIFIC DEFINITIONS, continued

20	(continued)	sectors within the economy instand of sectors
• • •		located within foreign economies. Typically,
		dependent economies have specialized in the
		export of a small number of resources and/or
		commodities at the expense of having to
		import large amounts of others. This
		specialization should be reflected in large
		income figures for one or a few sectors, and
		small for others, leading to a high value for
		the gini index of sectoral inequality.
		Disadvantage: It is not a measure of
		disarticulation per se. It is, at best, only an
		indirect approximation.
ГОN	TES: aThe international standard industrial classification defines the	e following as discrete economic sectors (from
	Taylor and Hudson, 1972, 213-14):	

TABLE I: VARIABLES, CONCEPTUAL USE, AND SPECIFIC DEFINITIONS, continued

- Agriculture, forestry, hunting, fishing
 - Mining and quarrying
 - Manufacturing
 - Construction
- Electricity, gas, water, sanitation
- Commerce (wholesale and retail trade, banking, insurance, real estate)
 - Transportation, storage, communication and services

incomes between sectors. (A detailed discussion can be found in Taylor and Hudson, 1972, 212-13.) According to Taylor and Hudson, these differences in worker incomes "... get at the measurement of imbalance between the rural subsistence farming sector and the urban commercial and manufacturing sectors of a dual economy... ^bThe objective of gini index of sectoral inequality is to measure the differences between average worker " (same source).

NOTES TO CHAPTER 4

- A discussion of the data sources and characteristics can be found below and in the Appendix.
- ²When one's figures are computed from data taken as a random sample from a larger population and used to generalize back to that larger population, then tests of significance can be used to evaluate the probability that the derived Betas and R²s accurately reflect those of the larger population. But because the data used in this analysis is a non-random sample whose size almost equals that of the total population, tests of significance have little meaning (Asher, 1976; Camilleri, 1962; Morrison and Henkel, 1969; Selvin, 1957). But for the benefit of those who do not accept this argument, the results of tests of significance will still be reported.
- ³It should be noted that even an R² equal to I could, in theory, be entirely a product of coincidence: the empirical match between the variations of the dependent and independent variables <u>could</u> be the result of forces irrelevant to the theory being tested. But the reverse is not true. Barring gross errors of measurement, a low R² can never be interpreted as support for a theory. Consequently, a high R² is a necessary, but not sufficient, condition for empirical support of theory, and when two or more theories are being compared, comparison of the R² is a legitimate criterion for discriminating between them.
- ⁴See the discussions of the methodological problem of identification in Asher (1976, 49-51) and Kenny (1979, 34-41, ch.4). The number of potentially non-zero paths rises geometrically with the number of variables, making the problem of identification increasingly intractable.
- ⁵"Multicollinearity" means that the relationships between the independent variables--as measured by the correlation coefficients--are too high. When they are too strongly interrelated, it means (intuitively) that the various independent variables are, in fact, measuring different aspects of the <u>same</u> essential phenomenon. In this sense one is, in effect, "double-counting" this same underlying phenomenon in its effect on the dependent variable. Computationally, multicollinearity is manifested at a certain stage in the solution of the regression equations as a division by a number at or near zero-leading to solutions that are undefined.

An accepted solution to the problem of multicollinearity is to drop one or more of the independent variables until the equations become soluble, which was the approach taken with the dependency model. for discussions of multicollinearity, see Asher (1976, 48), Kenny (1979, 65–68), and Neter and Wasserman (1974, 251–59, 339–47). ⁶See footnote 1 above.

⁷See chapter 2, section IV above.

⁸Such modeling techniques that allow for feedback loops are typically referred to as "non-recursive" or "non-hierarchical." Descriptions of the technique can be found in Asher (1976, 49-60), Kenny (1979, ch.6), and Kmenta (1971, 573-89). A brief, simple overview of some of the problems of nonrecursive path estimation can be found in Blalock (1964, 55-57).

⁹A more thorough description of the data can be found in the Appendix.

¹⁰Complete lists of countries used and omitted can be found in the Appendix.

- ¹¹The conceptual distinctions between core, semi-periphery, and periphery employed here were informed by the criteria found in Wallerstein (1976). The internal and external differences in the economic, political, and social structures that Wallerstein elaborates between these three classes of societies appears large enough to warrant an exclusive focus on the peripheral states.
- ¹²Chapter 3, footnote 2.

¹³Gerald Bennett, then at Michigan State University.

¹⁴The reduction to 78 cases brought with it two problems. The first resulted from the large number of missing cases for certain variables (see Appendix). An early step in the process of computing the regression equations involves the computation of correlation coefficients between all the variables used. The normal, most accurate procedure for handling missing data within the SPSS programs used here is to drop a case if data on one of the relevant variables is missing for that case (SPSS calls this "listwise deletion of missing data"). But the application of this procedure here resulted in the number of cases dropping too low to be meaningful (sometimes 3 or less). The alternative procedure--- "pairwise deletion"--computes correlation coefficients based on all the cases having data on only the two variables required for that correlation, regardless of whether the cases used are missing data on other variables in the regression equation. While this method increases the number of cases, it does so at the potential cost of valid and reliable results. For a more detailed discussion of this issue, see Nie, 1975, 312-13, 353.

The second problem lies with the distribution (variance) of the reduced N for each of the variables. Because most of the countries are poor, they are alike in ways that could reduce the variance enough to (potentially) make it smaller than the measurement error, which would grossly distort the results. Blalock (1972) suggests a measure of relative variance between unrelated distributions with very different means (the standard deviation divided by the mean) that might have been useful here, but limitations of time prevented its inclusion as a test. However, an examination of the means and standard deviations in Table B of the Appendix suggests that the variances are all probably adequate.

CHAPTER 5

THE STATISTICAL RESULTS AND THEIR IMPLICATIONS

I. THE COMPUTED VALUES FOR THE MODELS

Two sets of results are presented within each of the models below. Those path coefficients reported along the arrows without parentheses were computed including GNP per capita as a control variable. These are discussed in the text. Those coefficients within parentheses were computed without GNP per capita, and are included merely for comparison. In the same way, the coefficients of determination (\mathbb{R}^2) are presented twice (beside each endogenous variable). Those without parentheses result from the inclusion of GNP per capita in the regression equation, while those within parentheses were computed without GNP per capita.

It will be noted that in Models I, II, and IV, the exogenous variables are connected by double-headed arrows. Those arrows indicate that there is no hypothesized causal connection between the exogenous variables within the model, and the numbers appearing alongside those arrows are unanalyzed simple correlation coefficients (computed without any control variables). In the two variations of Model III, there is only one exogenous variable (fertility), so no double-headed paths appear.

Finally, each of Models I, II, and IV lack a potential causal path between fertility and a causally prior variable. In Model I, the omitted path is between democracy and fertility; Model II between exports and fertility; and Model IV between agricultural labor force and fertility. In Models I and II the omission was derived from the theories, which did not assert any direct causal connections

between those variables. In Model IV the omission was on methodological grounds. The inclusion of the path from agricultural labor to fertility within the regression equation for the latter caused the R² to become I, and the calculation of unique solutions to the path coefficients to become impossible due to multicollinearity between the independent variables.¹ Hence it had to be dropped.

In Figures 7 through 11 which follow, each of the models are presented again with the computed numerical values included. Following each will be a brief discussion of the model's consistency with the data.



MODEL I: SOCIAL-PSYCHOLOGICAL MODERNIZATION AND FERTILITY

One of the strongest and most striking features of the social-psychological modernization model is the high degree of intercorrelation between the exogenous variables (average r = .63), suggesting that they may reflect some common dimension of social reality (possibly education). This is as expected from the perspective advanced by social-psychological modernization, where education both causes and reflects the modernization process. Another strong point of the model is the high level of R^2 for both the birth rate (65% explained) and urbanization (61% explained).

The model is weaker when specific path coefficients are examined. The effect of literacy is strong and in the predicted directions on both capital formation (accumulation) and urbanization. But it is unexpectedly negative in its effect on industry, and altogether without effect on fertility. Again, school enrollment and newspaper circulation have a very strong negative effect on fertility (as predicted), but the majority of their effects upon the economic and structural variables are either strongly in the wrong direction or else negligible.

The weakest portion of the model surrounds the intervening economic and structural variables: industry, capital formation, and urbanization. With the exception of the direct path from industry to capital formation, the causal influences among these variables, and between them and fertility, are essentially non-existent (less than .1). Both industry and capital formation remain mostly unexplained by the model, while all three intermediate variables are influenced as often in the wrong direction by the exogenous variables as in the predicted direction. In the light of the apparent irrelevancy of these three variables, the main virtue for their inclusion within the model is as control variables

highlighting the strength of the relationship between newspaper circulation, school enrollment, and fertility; a relationship that is clearly not spuriously due to economic development.

Overall, 62% of the path coefficients are in the predicted directions, while another 62% are greater than .1 in strength.



FIGURE 8.

MODEL II: ECONOMIC MODERNIZATION AND FERTILITY

Restricting ourselves first to the R² values, it is clear that Model II is more effective at explaining variations in urbanization, literacy, and agricultural labor than it is at accounting for fertility, while exports and capital formation remain virtually unexplained.² Turning to the Beta weights, only slightly more than half (54%) have a magnitude larger than .1, while 65% are in the predicted direction (compared to 62% for Model I).

A major weakness of the model is the relative unimportance of the two exogenous economic variables (industry, and labor force in mining and manufacture) in explaining the variation of most of the remaining variables (excepting the percentage of the labor force in agriculture). While industry appears to support both exports and capital formation, and (via exports) is weakly consistent with urbanization, neither it nor any of these three it is most strongly connected to has much of an impact on fertility. Conversely, the other exogenous variable--the percent of the labor force in mining and manufacture--is most strongly connected to fertility, and unrelated to any of the other structural economic variables. The overall flow of causation that was anticipated is generally not supported.

What does emerge from this model is a re-affirmation of the importance of education (represented here only by literacy) to the reduction of fertility, consistent with what we found in Model I. Literacy is itself consistent with urbanization (as in Model I), and inconsistent with a largely agricultural labor force. The fact that literacy has a strong negative effect on fertility in this model while not in Model I is not itself a contradiction between the models, as literacy is the only variable representing education present in Model II, while in

Model I its importance to fertility was pitted against two closely related alternative measures of education.

A final unexpected result of Model II is the negative (although weak) connection between an agricultural labor force and fertility. This finding is inconsistent with the expectations of both modernization and dependency theories, and remains an interesting problem for future research.

There are consistent messages within the two modernization models that are suggestive for both modernization and dependency theories. The conventional indicators of economic development employed here (industry, capital formation, exports) do seem to increase together, although they are more weakly tied than might be expected. Yet these same economic variables do not consistently correspond to variations in urbanization, the education variables, and, most importantly, to fertility. This lack of correspondence explains the poorer showing of the economic modernization model, suggesting that it should be either modified or discarded. It also suggests that two important hypotheses about the effects of economic development advanced by modernization theory, at least as they are represented here, are not supported by the data. The first is that economic growth either enhances or is assisted by the spread of education: a claim not supported by the data here. The second is that urbanization is also tied to economic growth and industrialization, which is again not generally supported here (excepting the tie to exports and, negatively, by the inverse connection to the agricultural labor force).

The strongest support for the modernization perspective, present in both models, lies in the ties between urbanization and literacy, and between the education variables and fertility. The inverse variation between education and fertility is made all the more striking by its existence despite and independent of the variations among the indicators of economic development. It suggests the existence of ideological and/or life-style changes accompanying education, thereby negatively implying the prior existence of a "traditional culture."

These same data and models yield different conclusions when examined from the vantage point of dependency theory. The strength of the influence of education on fertility may, for example, be spuriously due to government spending on health, education, and other welfare programs that would collectively provide some social security, thereby relaxing some of the pressure on families to have children. The discrimination between this hypothesis and its rival outlined above (education affecting fertility via ideological change) could be accomplished by re-computing Model I with the addition of government spending on social welfare programs as a control variable (not done here).

The lack of connection within Models I and II between the economic variables and education is consistent with some of the claims of dependency theory. The rate of economic growth sets a limit on the money available for education and other welfare programs, but does not stimulate or require such spending. That remains a political decision, hence the absence of a positive relationship between education and economic growth is not surprising. Furthermore, the frequent appearance of negative relationships between the education and economic variables is also consistent with dependency theory, insofar as the latter asserts that the national economic conditions conducive to foreign investment and economic growth (e.g.--low taxes and wages) are hostile to popular welfare (Rubinson, 1976).³

Finally, the fact that the strongest positive link with urbanization (other
than literacy) is from exports is consistent with dependency theory on another point. It has argued that the existence of hyper-urbanization (the frequent appearance of "primate cities") historically reflects the role of cities within the periphery as transportation centers primarily in the service of international trade, not indigenous industry. Consistent with this point as well is the absence of any connection between urbanization and either industry or capital formation, while the percentage of the labor force in agriculture is inversely related to urbanization. This finding supports the claim that urbanization reflects both a flight from the countryside and the corresponding growth of a non-productive personal-service "tertiary" sector within the cities that exists detached from the industrial and agricultural sectors (Amin, 1976; Kentor, 1981). In other words, it suggests that the population is not being lured by opportunities for industrial employment, but expelled by changes in the agricultural sector (discussed in Chapter 3 above).



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MODEL IM-A: FERTILLITY AS A DRAKE ON ECONOMIC OUTPUT (COMPUTED VALUES)

FIGURE 9.





FIGURE 10.

MODEL III: FERTILITY AS A BRAKE ON ECONOMIC OUTPUT AND GROWTH

Compared to Models I and II, Models III A and B do very poorly, viewed either from the perspective of variance explained (R^2) or the direction and magnitudes of the path coefficients.⁴

Starting with Model III-A, it is immediately apparent that very little of the variance of any of the dependent variables is explained at all, especially GNP with 7 predictors (counting GNP/capita). Although proportionately more of the path coefficients are non-zero (73%) than in either Models I or II, their direction is consistent with the neo-Malthusian theory a bare 33% of the time.

In particular, fertility was expected to increase spending on education, drive interest rates up, and depress accumulation and economic output. Save its depressing effect on domestic capital formation, it does none of these. Instead, countries with higher fertility have lower interest rates, spend less on education, have slightly higher GNPs while their industrial share of the domestic product remains unaffected. Turning to the indirect effects of fertility on GNP size, we find that the majority of the indirect paths remain positive. The total of all of the indirect paths is modestly negative (-.089), but this is entirely due to the indirect path from fertility to GNP via interest (-.23). Unfortunately for the neo-Malthusian model, this latter indirect path is numerically consistent with the theory but theoretically inconsistent: interest rates are supposed to <u>depress</u> the GNP while being themselves <u>increased</u> by fertility--the exact opposite of what is in fact the case. The only path coefficients emerging from fertility consistent with the predictions are via capital formation, for which an alternative explanation is readily available (see below).

Educational spending is neither very responsive to fertility (R^2 = .022), nor

does it influence the economic variables appreciably (or in the right directions). Finally, interest rates do not behave as anticipated. Their total and indirect effect on GNP is high and positive (.457), and positive as well on industry. They are themselves affected by fertility and education in a way opposite to what was expected. To the extent that interest rates truly do inversely reflect the availability of investment capital, then the neo-Malthusian concerns about the effect of "excessive" population growth on the availability of capital are manifestly wrong.

Turning to Model III-B, we find that the substitution of GNP growth rate for GNP size changes very little. (Our discussion here will focus only on the new final dependent variable, because the other variables have remained unchanged from before. The visible changes in the Betas and \mathbb{R}^2 s is simply due to the slight difference in the choice of which variables were log-transformed.) If anything, the predictions are even farther off than before: the \mathbb{R}^2 is lower, while the influence of fertility on GNP growth is twice as positively related as in Model III-A. The indirect paths are also less supportive, totaling .166 from fertility. (Once again, the strongest negative indirect path is via interest, and once again it is "right" for the wrong reasons.) The effect of the other variables on GNP growth remains roughly consistent with their effects in Model III-A, entailing the same theoretical difficulties as before.

As presented here, the neo-Malthusian model should be discarded. The only path values in both models truly consistent with that perspective is from fertility to GNP (and GNP growth) via capital formation. However, another explanation for that is available. The positive link between capital formation and the two respective measures of economic output is not controversial, being consistent with all of the viewpoints examined in this thesis, hence not necessarily supportive of any one in particular. The more interesting influence is the path between fertility and capital formation (-.18). Superficially, it records the observation that countries with high rates of fertility are countries having lower capital formed as a percentage of their GNP (holding constant interest rates, educational spending, and GNP/capita). But if we recall from Chapters 2 and 3 above that fertility tends to be highest in labor-intensive agricultural settings, then one would <u>expect</u> capital formation--which reflects, among other things, agricultural and industrial purchases of equipment--to be lower. This would clearly be true not because of fertility <u>per se</u>, but because of the poverty of individual peasant smallholders.⁵ Hence even that portion of the model that is most consistent with the neo-Malthusian position need not be necessarily interpreted as supporting that position.

Despite their general failure to support the neo-Malthusian position, the models do provide interesting information relevant to the broader theories being contrasted here. The assumption that industrialization is the best approach to economic growth is curiously unsupported here--both models indicate that it has a zero or even negative effect on output. From a modernization viewpoint, this may simply show that industrial development throughout the Third World is as yet too low to have the hoped-for mobilizing effect on the rest of the economy.

As one can expect, the dependency perspective is quite different: the dependence upon external investment and trade (internal sectoral disarticulation) prevents either agriculture or industry from having a consistently and <u>inherently</u> mobilizing effect on economic growth. Mobilization is instead thought to come from without (trade and investment), not within. To the extent that industrial

facilities are foreign-owned (being the products of foreign investment), then the relative weight of the industrial sector in the economy should indirectly reflect the volume of repatriated profits, which themselves are a drain on the GNP. (No effort was made to discriminate between these rival views here, but in Model IV below, repatriated profits are associated with industry .24.)

Another interesting aspect of Models III A and B is the lack of any strong connection between the economic indicators and educational spending as a percent of GNP. As with Models I and II earlier, this reinforces the absence within the data of confirmation for the hypothesis that economic growth has much to do with popular levels of education, or the political choice to raise them.



FIGURE 11.

MODEL IV: THE EFFECTS OF DEPENDENCY UPON FERTILITY

Model IV is superior to all of the preceding models according to each of the empirical criteria used so far. The R^2 for fertility is higher at .74 than its nearest competing value (.65 for fertility in Model I); 84% of the path coefficients are in the predicted directions, and another 84% have values larger than .1.⁶ The R^2 for fertility is particularly striking because of the omission of the path from the agricultural labor force (discussed earlier). This omission reduces the number of predictors for fertility to 6, one less than the 7 used in the modernization models, hence it would be reasonable to expect the R^2 to be lower than for the other models.

A substantive strength of the model is the confirmation of the hypotheses that repatriated profits (indicating foreign economic penetration and exploitation) act to increase fertility indirectly via strongly suppressing the physical quality of life and, to a much lesser extent, by fostering inequality. This relationship is central to the entire demographic aspect of dependency theory, so its apparent confirmation by the data is crucially important. Despite the very strong negative direct effect of profits on fertility, the sum of all of the direct and indirect effects of profits on fertility is a modestly positive .14.

Other theoretically important consistencies between the theory and the data include:

I. the positive and high direct path from disarticulation to fertility, and the slightly lower but still strong (.42) sum of the direct and indirect effects of disarticulation on fertility;

- 2. the positive effect of income inequality on fertility;
- 3. the positive (although very weak) connections between profits,

176

disarticulation, and income inequality. Also interesting is the fact that although agricultural labor was found to be negatively related to fertility in Model II (-.11), and similarly related in prior versions of this model,⁷ its <u>indirect</u> effect on fertility via quality of life is strongly positive (.75), and its overall indirect effect is .78.

But the model poses some problems for the dependency perspective as well:

1. Income equality is very poorly predicted, considering the number of predictors (one less than for fertility). The paths have the predicted directions, but their values for the theoretically important dependency measures are near zero (c.f.--I.B.R.D., 1974, Appendix B; Mauldin and Berelson, 1978; Rubinson, 1976). Furthermore, the variable with the least direct impact on inequality is profits. Theory, on the contrary, would lead us to expect profits to have one of the strongest effects.

2. The direct path coefficient from repatriated profits to fertility is strongly negative (-.69), moderating its otherwise positive impact. By itself, this could be interpreted as support for the modernization perspective. That viewpoint could allow one to argue that profits are a stand-in variable representing foreign influence, hence the strength of the impact of western lifestyles. (The positive linkage between profits and industry may also provide support for this view.)

Despite these potentially serious anomalies, the basic themes of the dependency model are supported by the data. The direct and indirect effects of the two dependency indicators on the two crucial mediating variables (income inequality and the physical quality of life) remain as predicted, with income inequality being enhanced .18 (by profits) and .28 (by disarticulation); and the

physical quality of life suppressed -.58 (profits) while unaffected by disarticulation (.015). Similar computations for fertility reveal it also to behave as predicted, being promoted .14 by profits and .42 by disarticulation.⁸

The empirical support for these central expectations within the dependency model, combined with the high R² for fertility, and the other favorable empirical criteria for evaluating the model mentioned above, make the dependency model the strongest one of the 5 surveyed here. However, future research must investigate and clarify a potential difficulty. A quick comparison of the path coefficients from profits and disarticulation to each of the endogenous variables reveals that they are of opposite sign (income inequality excepted). These two variables are intended to measure different things--different aspects of dependency. But it is possible that, despite their .38 intercorrelation, they either do not faithfully represent what they are intended to, or that they do, but the theory is wrong about the relationship between them.

Consulting Table I, it seems reasonable to expect that profits and disarticulation would follow different curves if plotted against increasing size of GNP. Among the nations examined here, the volume of repatriated profits increases with the GNP (r = .4). But when repatriated profits are standardized by GNP size, the relationship shifts (r = ..1). Intuitively, this simply means that the relative economic importance of repatriated profits may slightly decline as the GNP grows larger.

Disarticulation as measured here may increase with GNP size. It will be recalled from Table I that disarticulation is approximated by the gini index of inequality of income per worker as distributed between the separate economic sectors. The poorest countries would not be likely to have sectors whose wages were significantly higher than the others--all sectors instead probably having low output, wages, <u>and</u> productivity. Hence low-GNP countries may also have low gini indices of sectoral inequality. The index may become higher at higher levels of GNP, where resource deposits or unusually favorable strategic and/or economic conditions allow the unequal development of some special hightechnology sector (e.g.--copper in Zaire, bauxite in Jamaica), creating the appearance of a "dual economy"---and elevating the gini index⁹ (Amin, 1974, 267-42).

If correct, these speculations may explain the opposing influences of profits and disarticulation, at least as they are measured here. Both variables may indicate complementary manifestations of dependency--the relative size of each aspect differing with levels of GNP. Further research would then have to control for GNP size before re-testing the model. It is also possible that the gini index does not truly reflect disarticulation, and that profits should be standardized by population size instead of GNP (c.f.--Bornschier, et al., 1978; Chase-Dunn, 1975; Rubinson, 1976). Until the problem is probed further, final judgment on Model IV should be withheld. But at this point, it remains the best supported of the group.

II. SUMMARY CONSIDERATIONS

None of the models have been flawlessly supported, and it appears that III (and perhaps II) should be discarded entirely, at least as currently specified. But certain generalizations have emerged from all of them, suggestive for further research:

I. Industrial development appears unrelated to economic growth, while

capital accumulation fosters GNP growth but is not dependent upon industrialization. This observation is consistent with dependency theory and not with modernization theory, but it is alone inadequate to discriminate between them. Longitudinal observation is called for here for more decisive information.

2. Urbanization is not responsive to industrialization or capital accumulation, nor has it any impact on fertility. Exports is the only economic variable with a statistically important impact on urbanization, and the percent of labor in agriculture the only demographic one. This finding is consistent with the idea that urban settings per se do not affect fertility rates, and that as long as the contemporary urban social structural conditions remain (i.e.--child labor, absence of effective social security programs, etc.), then fertility may remain These findings also suggest, once again, that high, or fall more slowly. agricultural in-migration from labor expelled by re-organized production relations and techniques in the countryside is an important contributor to urban growth. If these findings were found to hold true over time, they might direct more demographic attention to the importance of social security as an analytic variable, and away from urbanization. A related question of interest for future research is whether urban growth has historically been caused mainly by industrial expansion or agricultural expulsion. Longitudinal measurement of this would be difficult, because it would require a reliable measure of the service sector split into three sub-sectors: government, major corporations (e.g.--banks, restaurant chains, legal and engineering services), and the "informal" segment of street hawkers, domestic servants, etc. If the hypothesis of agricultural expulsion is correct, then the informal service sector should be the major source of urban growth over time (relative to the rate of expansion of government and corporate employment).

3. The education variables are negatively connected to fertility, and their associations with the economic variables are either inverse or nealigible. As with industry and urbanization, these findings (especially the lack of connection between education and economic growth) are more compatible with dependency than either of the two versions of modernization theory examined here (for the reasons discussed earlier regarding Model II). The most salient issue raised here is the precise reason for the strong linkages between education and fertility: is it a spurious connection to social welfare, or is education an agent of ideological change affecting desired family size? Further modeling should include all of the strongest relationships within the models, incorporating lessons learned from each into one model. Especially for the strong educationfertility link, one well-designed model could allow us to disaggregate spurious from "real" effects. (Such "re-modeling" could also allow us to transcend orthodox ideological boundaries/blinders and, where the data warrant, integrate observations from both theoretical perspectives.) Adequate pursuit of this question again requires time-series data, as well as the introduction of other social welfare indicators as controls.¹⁰

4. To further reduce the possibility for the presence of spurious relationships because of wealth, the models should be re-computed with GNP size replacing GNP/capita as a control variable, and the results compared. If they remained similar, we could be more confident about the authenticity of the relationships.

5. The state of "dependency" needs to be more carefully specified, perhaps being broken down into sub-types united by theoretically relevant common characteristics. The aggregate data employed for the statistical tests used here prevent us from insights possible from an analysis that incorporates case-by-case knowledge of the specific histories of these nations. (This problem is typical of cross-national data analysis, which usually downplays or ignores historical differences.) Both statistical and theoretical precision would be greatly improved were we to perform separate tests within--instead of across-sub-types. Some criteria for dividing the cases could include geographic area, era of incorporation into the world economy, whether or not a colony and of what world power, and type of main economic activity (e.g.--tourist, export platform, mining, etc.). The variable representing "dependency" could then be appropriate to each sub-type. Once refined and clarified in this way, indicators could become correspondingly more precise and informative. As it stands now, most researchers have limited themselves to using repatriated profits per capita, which alone is grossly inadequate for capturing the actual complexity of the total concept of dependency, because it artificially relies upon only one small aspect of it (i.e.--Bornschier, et al., 1978; Kentor, 1981). My own effort here to combine profits/GNP with a measure of disarticulation led to results that, although plausible, remain in need of clarification.

* * *

At present, it appears that the dependency approach is the most promising for future research, both on the grounds of the statistical results presented here, and the documentary support presented in Chapter 3. This promise is reinforced by the statistical and documentary failure of the neo-Malthusian explanation for poverty, a failure acknowledged by many orthodox demographers and economists today (Ahmed, 1974; Billsborrow, 1973; Easterlin, 1967; Kuznets, 1966, 1967; Meilink, 1974; Sinha, 1973), and re-confirmed in the analysis here. The dependency approach may also help to resolve the central theoretical challenge posed by the concept of the demographic transition: when and why will the falling levels of fertility in the Third World result in a stable global population?

The preliminary results of the models here suggest that the reason why demographers have been frustrated in their efforts to predict fertility levels based on macro-economic indicators (e.g.--industrialization, urbanization) is that they have been looking at the wrong data, and informed by an inadequate understanding of the operation of Third World economies. If dependency theory is correct, then the mechanisms and structures of peripheral and metropolitan countries are dissimilar, so no theory of demographic change inspired solely by the history of the metropolitan countries can be inflexibly applied with success to the population of the periphery.

Specifically, in the metropolitan countries, declining fertility seems to have reflected several complementary changes: mass proletarianization that removed the utility of the extended family while encouraging the adoption of the nuclear form,¹¹ coupled with the later emergence of a "family" wage and compulsory education removing the necessity for and the legality of child labor. Few of these conditions have emerged in the periphery, nor does it appear likely that they will emerge soon. For dependency theorists, the development of such conditions would be accelerated by a global redistribution of political power and wealth, and, pending such a redistribution, fertility will decline only as children cease to be useful parts of the production process (for whatever reasons).

But it would be premature to claim that the dependency demographic perspective has in any way been "demonstrated" to be correct. The most that can be claimed is that it is the most consistent with the data so far. But even that claim has weaknesses on both epistemic and methodological grounds. Methodologically, the statistical evidence is ultimately derived from bureaucracies operating within political and budgetary restaints, who may occasionally misrepresent the data or make educated guesses rather than report data accurately.

Epistemologically, it is not necessarily defensible to presume that, for example, countries with equal levels of their population living in cities of 100,000 or more are somehow comparably urbanized. Implicit within this presumption is the untenable assumption that all cities of 100,000 are alike in ways relevant to one's research.¹²

The documentary evidence is equally flawed: historians and sociologists often will tend to selectively evaluate and present information supportive of their own ideological position (Fischer, 1970).

The best defense of the adequacy of these empirical and theoretical tests is that the errors, distortions, and occasional misrepresentations found on both sides of the issue will tend to cancel each other out, producing a random but irreducible error in all the data. With regard just to the statistical data, the historic tendency has been for it to improve in quantity and quality, along with the analytic and physical tools for analyzing it, and there is every reason to expect this trend to continue. If true, then the results presented here are an interim report of a project just begun.

NOTES TO CHAPTER FIVE

See note 5 in preceding chapter.

 2 The low R^{2} for exports is partly accountable from the fact that it has only three predictors, while most of the endogenous variables in all of the models have at least 4. While comparisons between R^2 magnitudes arising from unequal numbers of independent variables should only be made with areat caution, here it seems justified, because both exports and capital formation have lower values of R^2 than can be accounted for merely by the number of predictors.

To assess this claim, one can sum the R²s within the model, divide by the total number of causal arrows, thereby deriving an average R^2 increment per arrow (predictor) applicable to that model. That derived average can then be multiplied by the number of predictors for both exports and capital formation, and the resulting hypothetical R^2 value compared to the actual. Using this procedure, exports and capital formation are clearly found wanting.

The total number of causal arrows = 32 (counting GNP/capita). 1.

2. (Moving clockwise from exports and summing R^2):

(.192) + (.166) + (.607) + (.496) + (.504) + (.684) = 2.649/32 = .0828.(.0828) x (4) = .331 expected value of R² for exports if it were strictly proportional to the number of predictors. Its actual value is .192. With 5 predictors, the expected R^2 for capital formation is .414 vs. actual .166. Finally, with only 3 predictors, labor in agriculture should be expected to have an R^2 of only .248, only 36% of its true value.

³Specifically, corporate taxes are a major source of government revenue for many countries. Especially in countries with a large inequality of income distribution, the lower half of the population is not financially able to contribute much to the national treasury, while the ability of the government to tax the wealthy is constrained by their disproportionate political influence. Foreign corporations are both able to afford taxes and more politically vulnerable to being assessed them. Consequently, lowering corporate taxes to attract investment cuts quickly into the national revenue, reducing the ability of the treasury to sustain financing for education, health, and other politically vulnerable budget items.

Low wages probably encourage child labor, hence depressing to that extent the school enrollment ratio. (Note, for example, the -.33 Beta weight between school enrollment and capital formation.)

⁴The extremely poor showing of Model III may reflect the inappropriate selection of a variable (specification error). The use of crude birth rate for 1965 allowed no lag time for it to create effects in the other variables. For example, use of the 1965 fertility variable in the other models produced some results markedly different from those reported here (which were

derived using lagged 1976 fertility data). Presumably use of 1955 fertility figures might have generated similarly different results as well, but such data were not readily available to me at the time of the analysis.

- ⁵This argument can still be valid even with the presence of GNP/capita as a control variable, because GNP/capita does not allow for inequality of income distribution. Consequently, countries with equal GNP/capita could still retain vast differences between themselves in the average income of the lowest income groups--such as the peasantry.
- ⁶The average R²--the sum of the R² values divided by the number of endogenous variables--is another way of comparing Models I, II, and IV. For Model I it is .401; for II, .442; and for IV, .518. An alternative average can be derived as described in note 2 above: the sum of the R² values over the total number of causal arrows. Computed in this way, the results are similar: for I, .064; II, .083; IV, .104.
- ⁷Prior regressions attempting to incorporate the percent of the labor force in agriculture among the other Model IV predictors of fertility (in separate combinations) yielded Beta values of -.541, -.549, -1.561, -2.32, -2.39.
- ⁸Statistical theory teaches us that the sum of direct and indirect effects should be equal to the correlation coefficient (Asher, 1976; Kenny, 1979). When it is not, the model has been improperly specified (wrong variables and/or wrong hypothesized causal interconnections). The sum of the effects of profits on fertility is .14 (r = .01), disarticulation on fertility is .42 (r = .34), profits on quality of life is -.58 (r = -.42), disarticulation on quality of life is .015 (r = .11), profits on inequality is .18 (r = .18), disarticulation on inequality is .28 (r = .28). Some of these numbers match well, some are close, some are more distant. The effects of the dependency measures on fertility are incomplete because of the absence of the connection between agricultural labor and fertility.
- ⁹Beyond the sample, among the metropolitan countries, dependency theory asserts that the different economic sectors, because of intersectoral crosspurchasing and the mobility of capital, revolve around a dynamic equilibrium of similar productivities and wages. If arrayed against the full spectrum of GNP (including countries omitted here) the gini index might take on a bell curve distribution.
- ¹⁰Mauldin and Berelson (1978) summarize the findings of 24 studies done on fertility, many of them also reporting that education (variously measured) is more salient for predicting fertility than socio-economic data. However, none of these have employed the methodological approach suggested here, leaving the question posed here still open.

- 11 An important reason for this might be the superior mobility of the nuclear over the extended family, hence an improved adaptability to follow the shifts in the demand for labor.
- ¹²The problems cited here of accuracy and comparability of cross-national statistical data have been of long-standing concern among comparative sociologists (i.e.—Armer and Grimshaw, 1973; Taylor and Hudson, 1972).

APPENDIX

APPENDIX

RAW DATA CHARACTERISTICS AND SOURCES

Table A

Complete Country List for 1965 (peripheral capitalist countries)

- I. Afghanistan
- 2. Algeria
- 3. Argentina
- 4. Bolivia
- 5. Burma
- 6. Burundi
- 7. Cambodia
- 8. Cameroon
- 9. Central African Republic (Empire)
- 10. Ceylon (Sri Lanka)
- 11. Chad
- 12. Chile
- 13. Colombia
- 14. Congo-Kinshassa (Zaire)
- 15. Costa Rica
- 16. Cyprus
- 17. Dahomey (Benin)
- 18. Dominican Republic
- 19. Ecuador
- 20. El Salvador
- 21. Ethiopia
- 22. Gabon
- 23. Ghana
- 24. Guatemala
- 25. Haiti
- 26. Honduras
- 27. India
- 28. Indonesia
- 29. Iran
- 30. Ivory Coast
- 31. Jamaica
- 32. Jordan
- 33. Kenya
- 34. South Korea
- 35. Kuwait
- 36. Laos
- 37. Lebanon
- 38. Liberia
- So. Liberia

- 39. Libya
- 40. Malagasy Republic
- 41. Malawi
- 42. Malaysia
- 43. Mali
- 44. Mauritania
- 45. Mexico
- 46. Morocco
- 47. Nepal
- 48. Nicaragua
- 49. Niger
- 50. Nigeria
- 51. Pakistan
- 52. Panama
- 53. Paraguay
- 54. Peru
- 55. Philippines
- 56. Rhodesia
- 57. Rwanda
- 58. Saudi Arabia
- 59. Senegal
- 60. Sierra Leone
- 61. Somolia
- 62. Sudan
- 63. Syrian Arab Republic
- 64. Taiwan
- 65. Tanzania
- 66. Thailand
- 67. Togo
- 68. Trinidad
- 69. Tunisia
- 70. Turkey
- 71. Uganda
- 72. United Arab Republic (Egypt)
- 73. Upper Volta
- 74. Uruguay
- 75. Venezuela
- 76. South Vietnam
- 77. Yemen
- 78. Zambia

APPENDIX, continued

1	(P)	Albania
2	(Γ)	Australia
3	(SP)	Austria
у. 4	(C)	Belgium
5	(SP)	Brazil
6	(P/SP)	Bulgaria
0. 7	(C)	Capada
8		China
9	(P)	Congo Brazzaville
10	(F)	
10.		Czechoslovakia
12	(Γ)	Denmark
13	(SP)	Finland
14	(C)	France
15.		Fast Germany
16.	(Γ)	West Cermony
17.	(SP)	Greece
18.	(P)	Guipea-Conakry
19.	(P/SP)	Hungary
20.	(SP)	Iceland
21.	(P)	Iraq
22.	(SP)	Ireland
23.	(SP)	Israel
24.	(SP)	Italy
25.	(SP)	
26.	(SP)	Luxembourg
27.	(C)	Netherlands
28.	(SP)	New Zealand
29.	(SP)	Norway
30.	(P/C)	Poland
31.	(C)	Portugal
32.	(P)	Romania
33.	(SP)	South Africa
34.	(P/C)	Soviet Union
35.	(SP)	Spain
36.	(SP)	Sweden
37.	(SP)	Switzerland
38.	(C)	United Kingdom
39.	(C)	United States
40.	(P)	Yuqoslavia
		J

Countries Excluded From Table A (Exclusion Code: P = centrally planned, C = core, SP = semi-periphery)

APPENDIX, continued

Variable Name		Source ² Page or Code Line Item		Valid Cases ^{Mean}		Standard Deviation
۱.	Gross National Product (in millions U.S. \$)	T&H	306-11	78	2835.962 6.9633 ³	6364.345 1.3187 ³
2.	Gross National Product Growth: 1960–65 (%)	T&H	306-11		2.6269	1.4980
3.	Gross National Product Per Capita (in dollars)	T&H	314-20	78	260.538 5.1543 ³	399.940 0.8162 ³
4.	Gross Fixed Domestic Capi- tal Formation as a % of GNP	T&H	341-42	78	16.0385 2.7333 ³	3.6488 0.3710 ³
5.	Industry as a % of Gross Domestic Product	T&H	338-40	78	21.0128 2.9401 ³	8.7036 0.5022 ³
6.	Exports in Millions \$ U.S. ¹	IFS	70	70	102.4224	133.6256
7.	Disarticulation: Gini Index of Sectoral Income Disarticulation (index units 0–100)	T&H	263-64	26	33.185 3.4456 ³	10.403 .3604 ³
8.	Repatriated Profits: Debits on Investment Income Over GNP (index units 0–100)	BPY	6	61	.0314	.0480
9.	Interest: Discount Rate ¹ on Interest (%)	IFS	60	37	5.6700 1.6398 ³	3.0432 0.4062 ³
10.	Percent of Male Labor Force in Agriculture	T&H	332-34	57	58.7368	21.1707
11.	Percent of Male Labor Force in Mining and Manufacture	T&H	329-31	78	12.1679	4.3404

Table BVariables, Sources, and Descriptive Statistics

APPENDIX, Table B, continued

Var	iable Name	Source Code	² Page or Line Item	Valid Cases	Mean	Standard Deviation
12.	Urbanization (% of populationc.f., Table I)	T&H	219-21	78	12.2577	11.1451
13.	Gini Index of Income Inequality (index units 0–1)	Jain	AII	43	.4977	.1023
14.	Physical Quality of Life Index (Methodological Explanation)	ODC	147-54	78	38.0603	33.3875
Raw Data From:						
	Literacy (%)	T&H	232-34	76	37.3947	27.4246
	Life Expectancy (years)	Dem	Table 46 640-56 253-55	54	47.180	11.131
	Infant Mortality (number of deaths of infants less than I year old / 1000 live births)	T&H		59	122.000	95.720
15.	Literacy (see above)					
16.	School Enrollment Ratio (adjusted) (%—c.f., Table 1)	T&H	225-28	75	45.3333	23.1390
17.	Educational Spending	T&H	30-32	77	2.9455	1.3821
	as a % of GNP				0.9425 ³	0.5967 ³
18.	Democracy Rating (index range 0-100)	Dahl	231-45	71	13.2535	8.1936
19.	Newspapers Circulated Per 1000 People	T&H	242-48	73	33.8493	51.1193
20.	Crude Birth Rate 1965 (live births / 1000 people)	Dem Yrbk	331-41	54	36.2241	8.7710
21.	Crude Birth Rate 1976	Chart	Column 3	78	43.1282	7.5719
	(same as #20)				3.7450 ³	• 2096 ³

APPENDIX, Table B, continued

- 1. Taken as the unweighted average of the 4 quarters reported for 1965.
- Source Code Translation: T&H: Taylor and Hudson (1972) IFS: (International Financial Statistics) IMF, 1973 (line item) BPY: (Balance of Payments Yearbook) IMF, 1968 (line item) Jain: Jain, 1975 ODC: Overseas Development Council, 1977 Dahl: Dahl, 1971 Dem Yrbk: U.N., 1969 Chart: Environmental Fund, 1976
- 3. when logged

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